he Iron

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A Review of the Hardware, Iron and Metal Trades.

ADVERTISEMENTS

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The Beavis and Martin Rod Mill.

Among the many efforts being made to improve rod-mill practice, that of Messrs. Edwin H. Martin, who has been for years engineer of the Cleveland Rolling Mill Company, and of John Beavis, a practical rod roller, deserves attention. A patent for their design was granted to them on the

wheel g on the latter, meshing with gear-wheel h. Gear-wheel d is of less diameter than a, while f is of less diameter than gear duction of good quality rods and uniform

Casting Aluminium Bronze and Other be adopted to suit varying conditions. One Strong Metals.* their design was granted to them on the 28th of September. We are indebted to them for the following description:

The object sought in this design is to obtain a superior quality of rods both as to shape and uniformity of size, and to preserve the equal density and consequent uniform tensile strength of the metal, of which so much complaint is heard, and at the same time retain the quantity of the output rolled by other mills. The means by which we accomplish this are shown in the accompanying plan. A is a compound engine which drives the whole of the machinery, and in this design is located at the respective shaftings of the several roll sections decrease in diameter as we go down

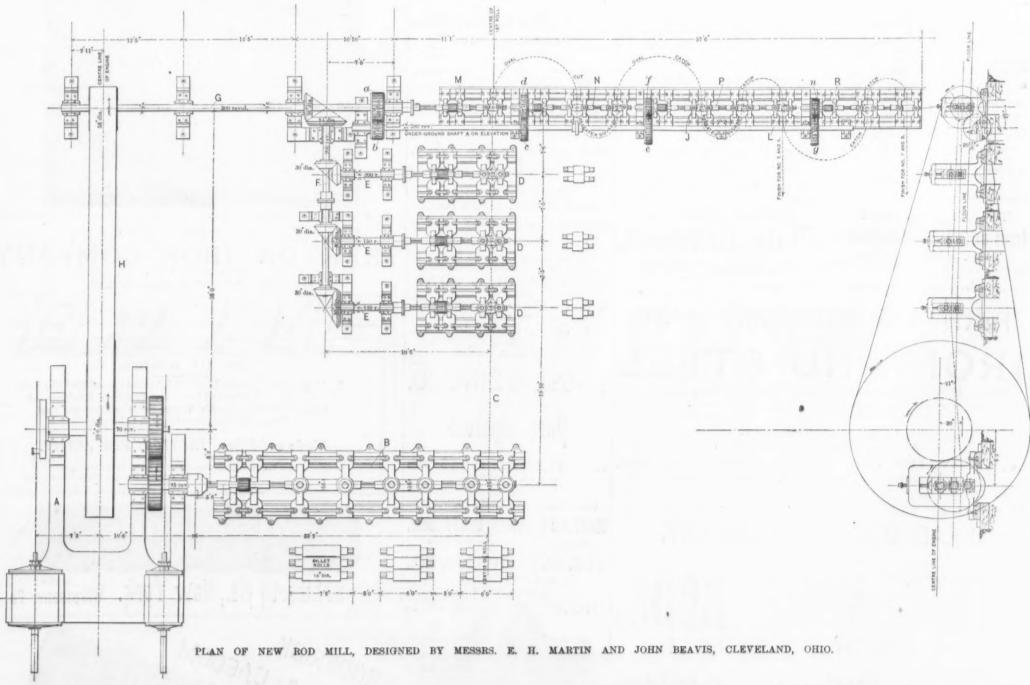
d, and h is of less diameter than f. Gearwheel c is of greater diameter than b, while gear-wheel c is of greater diameter than c, and g is of greater diameter than c. That is, the gear-wheels which are fixed on the rolls as the rod decreases in size when com-pared with the present practice of increas-ing the diameters of the rolls as they approach the finishing. Finned rods and un-even size are sure to follow this increasing diameter, and also unequal density and tensile strength, whereas by the opposite method

BY THOMAS D. WEST.

The ability to cast in molds a material which possesses strength equal to the best forgings of wrought iron and steel is an achievement which mechanical engineers may well be interested in. While it is true that the strongest metals are susceptible of strength, whereas by the opposite method the texture of the metal is much better preserved and the shape and uniform size of rod greatly improved and the cost of production reduced 30 per cent.

being cast, yet there are peculiarities about them which cause greater inconvenience and expense in the effort to procure good, solid, clean castings than occur with cast iron. These come mainly from the difficulties in the control of the cast of the control of the cast of the cast of the control of the cast of which so much complaint is heard, and at the second section and the fourth is faster than the third section. The several stands of rolls in the rod train have the diameters by which we accomplish this are shown in the accompanying plan. A is a compound the compound train. This decreased as we go down the engine which drives the whole of the machinery, and in this design is located at the left of the blillet train B, to the spindle of the machinery and the the accompanying plan. The several stands of the fourth is faster than the stord as the speed at the left of the plants. The second section and the fourth is faster than the second section and the fourth is faster than the second section. These come mainly from the difficulties in overcoming the evils due to oxide, shrinkage and contraction. These elements of course, exist in the founding of cast iron; but the degree to which they make labor and to use, and the stronger it could be made to the degree to which they make labor and the commerce imported into the Netherlands as in force in 1885. The following is the sched-unity of the custom duties on the principal articles of the custom

pressibility of cores or parts forming the interior portion of castings, while another is the resistance which flanges, &c., upon an exterior surface oppose to freedom of contraction of the mass. An illustrative case which the writer had to deal with in the foundry referred to above was the casting of some blast-furnace tuyers, the dimensions of which were about 12 inches diameter at the small end and 14 inches diameter at the large and 17 inches long. These tuyeres were made hollow for the passage of water to keep them cool when the furnace was in blast. The core to form



one set of rolls, the first section having athered a general idea of the construction third three and the fourth section having two stands of rolls. A counter-shaft, L, extends underground parallel with the

the rod train direct by coupling to pinions ing pass for Nos. 5 or 6 rod, while the fourth of said rolls.

two stands of rolls. A counter-shaft, L, ex-tends underground parallel with the rod train. It is spur geared at its forward ex-first, the manner of increasing and tremily to shaft G by gear-wheel a on the latter shaft, meshing with gear-wheel b on shaft L. The shafting M of the first section of the rod train is coupled directly to and driven by shaft G.

The shafting N of the second section of driven by shaft G.

The shafting N of the second section of the rod train is spur-geared to shaft L by the gear-wheel c on the latter, meshing. The shafting P of the third section of the rod train is spur-geared to shaft L by gear-wheel c on the latter, meshing with the gear-wheel c on the latter, meshing with great velocity, whereas in the system here illustrated we can always retain the allignment of the rolls, which prevents hot necks, &c., and the latter we wear is more evenly distance in the upper surface of the piece. The products are the result of this staggering alignment, we wering away the metal. In breech-loaders, where the shot fits tightly, and there is no such windage, the wear is more evenly distance in the upper surface of the piece. The products are the result of this staggering alignment, where a considerable windage exists above the ball, the wear takes place in the upper surface of the piece. The ball, the wear takes place in the upper surface of the piece. The ball, the wear takes place in the upper surface of the piece. The ball, the wear takes place in the upper surface of the piece. The ball, the wear takes place in the upper surface of the piece. T

It has long been known by students of gunnery that the combustion of gunpowder in cannon, especially in those of short caliber, was
imperfect. The result of this fact is that a
quantity of powder is blown out of guns
when fired, in grains, burning as it goes
through the air. The erosion of the bores
of cannon is probably effected by this cause.
In a recent article Sir Frederick Abel attributes erosion to the action of gas vapors
and liquid products upon the beated surface and liquid products upon the heated surface of the bore. When it is known that a large quantity of powder is driven out in the solid form, its influence on the process of erosion should not be lost sight of. In mussle-loaders, where a considerable windage exists above the ball, the wear takes place in the upper

The difficulties which beset the casting of aluminium bronze are in some respects similar to those which were encountered in perfecting methods for casting steel. There is much small work which can be successfully cast by methods used in the ordinary molding of east iron, but in peculiarly proportioned and in large bronze castings other means and extra display of skill and judgment will be generally required. In strong metals there appears to be a "red short-ness," or degree of temperature, after it becomes solidified at which it may be torn apart if it meets a very little resistance to

which it is directly geared. This first train, B, we use as an 18-inch three-high, which is suitable for rolling from a 4 or 5 inch billet, and a trough, C, extends from the last inpass of the train to the first pass of the continuous train D. This second train has the several shaftings E of each set of rolls betwel-geared to shaft G, connected by belt H to the driving-shaft of engine A. Saaft G extends to and drives the first set of rolls in the root train may be used as a finishment of the root train direct by coupling to pinions. The root train direct by coupling to pinions and drives the first set of rolls in the root are taken up close to the rolls, insuccessful molding and casting in the foundry of the firm manufacturing this unconstant and spikes, free. Spelter—Crude and falted, free. Steel in staffs—Steem and strong the maxing of castings from the last of the root train has the several shaftings E of each set of rolls in the preceding pass in the third section of the rod train may be used as a finishment of the root train direct by coupling to pinions. pressible as a "green sand" core when the pressure of the contraction of the metal would come upon it. It might be well to state that the size of this core was such as would leave I inch thickness at each end, and 1/4 inch of the inner and outer sides of the casting, and was all surrounded with metal, excepting four I-inch round openings through which the core delivered its vent or gas. By means of dried rosin or green-sand cores we were able to meet almost any difficulties which might arise in ordinary work from the evils of contraction, so far as cores were concerned. For large cylinders its contraction, and the separation may be such as cannot be detected by the eye, but will be made known only when pressure is put upon the casting. To overcome this evil and to make allowances for sufficient allow freedom for contraction sufficient to freedom in contraction much judgment will insure no rents or invisible strain in the often be required, and different modes must body of the casting. To provide means for * Paper presented at the New York meeting of the American Society of Mechanical Engineers, November 29 to December 3, 1886.

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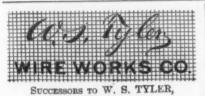
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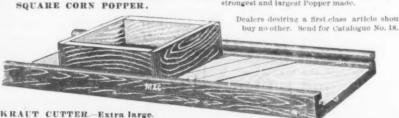
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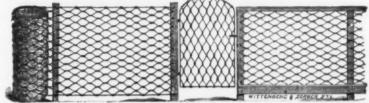
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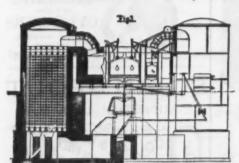
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jury, different methods will have to be employed in almost every new form of such patterns It may be that conditions will permit the mold to be of a sufficient yielding permit the mold to be of a sufficient yielding character, and again it may be necessary to dig away portions of the mold or lossen bolts, &c., as soon as the liquid metal is thought to have solidified. In any metal there may be invisible rents or strains left in a casting through tension when cooling sufficient to make it fragile or crack of its own accord, and it is an element which from its very deceptive nature should command the closest attention of all interested in the content of the content of

in the construction of castings.

Like contraction, the element of shrinkage is often found seriously to impede the attaining of perfect castings from strong metals. In steel castings much labor has to metals. In steel castings much labor has to be expended in providing risers sufficient to "feed solid" or prevent "draw-holes" from being formed, and in casting alumin-ium bronze a similar necessity is found. The only way to insure against the evils of shrinkage in this metal was to have the "risers" larger than the body or part of the castings which they were instead. shrinkage in this metal was to have the "risers" larger than the body or part of the castings which they were intended to "feed." The feeder or riser being the largest body, it will, of course, remain fluid longer than the casting, and, as in cast iron, that part which solidifies first will draw from the nearest uppermost fluid body, and thus leave holes in the part which remains longest fluid. The above principle will be seen to be effective in obtaining the end sought. It is to be remembered that it is not practical to "churn" this bronze, as is done with cast iron. A long cast-iron roll, I foot in diameter, can by means of a feeder 5 inches in diameter and a ½-inch wrought-iron rod be made perfectly sound for its full length. To cast such a solid in bronze the feeding head should be at least as large as the diameter of the roll, and in length about one-quarter longer than the length of roll desired. The extra length would contain the shrinkage hole and when cut off a solid casting would be left. This is a plan often practiced in the making of guns, &c., in cast iron, and is done partly to insure against the insphility of many is a plan often practiced in the making of guns, &c., in cast iron, and is done partly to insure against the inability of many molders to feed solid, and to save that labor. A method which the writer found to work well in assisting to avoid shrinkage in ordinary castings in aluminium bronze was to "gate" a mold so that it could be filled or poured as quickly as possible, and to have the metal as cull as it would flow, to warrant a full run casting. By this plan to warrant a full run casting. By this plan very disproportionate castings were made without feeders on the heavier parts, and upon which draw or shrinkage holes would surely have appeared had the metal been

The plan or principle adopted in pouring this bronze is similar to that employed for casting steel, which, as is well known, concasting steel, which, as is well known, consists in pouring through a spout controlled by a valve, which lets the metal flow from the bottom of a ladle instead of the top or lip, as practiced in pouring cast iron. The exact plan which the writer used for castings weighing over 50 pounds was to make the pouring basin sufficiently large to contain all the metal necessary to fill the mold and give any surplus which might be required for a "flow off" or to fill up "feeding heads," &c., and so prevent any metal from flowing into the mold until it metal from flowing into the mold until it was all in the pouring basin. The entrance was all in the pouring basin. The entrance of the gate would be stopped by means of an iron plug, and the moment all was ready it would be pulled and the metal would almost instantly fill the mold, so large would its gates be made. By such a plan it will of course be readily seen that there was no danger of any "scum" or oxide entering the mold, an element which would seriously mar the appearance of a casting. Besides the difficulties from difference in seriously mar the appearance of a casting. Besides the difficulties from difference in the color, which resembles gold, such oxide would be very liable to cause a disunion of the particles of the body, or make an unacceptable surface when the casting was finished up. The metal itself is one that works well in our ordinary molding sands and "peels" extra well. As a general thing, disproportionate castings weighing over 100 pounds are best made in "dry" instead of "green" sand molds, as such will permit of cleaner work and a duller pouring of the metal, for in this method there is not that dampness which is given off from green that dampness which is given off from green sand mold and which is so liable to cause "cold shots." When the position of the casting work will permit, many forms which are proportionate in thickness can be well made in green sand by coating the surface of the molds and gates with silver lead

plumbago. From "blow-holes," which are another characteristic element likely to exist in strong metals, it can be said that aluminium bronze is free. Should any exist it is the fault of the molder or his mold, as the metal itself runs in iron molds as sound and close as gold. Sand molds to procure good work must be well vented, and, if of "dry sand, thoroughly open sand mixture should be used and well dried. The sand for "green-sand" work is best fine, similar to what will work well for brass castings. For "dry-sand" work the mixture should be as open in nature as possible, and, for blacking the mold, use the same mixtures as are found to work well with cast iron. The different problems of making strong metal castings all present peculiarities which call for special treatment in the manner of molding, &c., but, as said in the beginning of this paper, the difficulties to be overcome mainly hinge more or less upon one or other of the three elements oxide, shrinkage or con-traction. These are being controlled better every day, and progress is made by which almost any kind of casting can be precured as readily as of cast iron. With aluminium as readily as of cast iron. With aluminium bronze, "Mitis" and steel castings to be had, the engineer should not want for strong metals to meet almost any condition which he may desire.

The Boston Herald of the 3d inst. contains long and somewhat enthusia-tic accounof an invention by Elbridge Wheeler for casting steel ingets with a core of sand. Mr. Thomas Gogin, of the Norway Works, has indorsed it.

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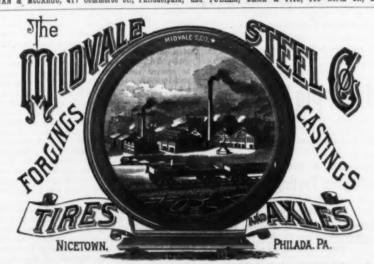
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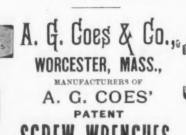
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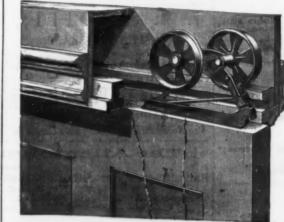
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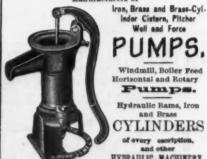


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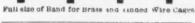
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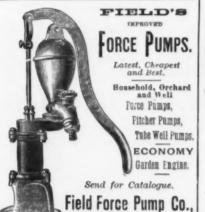
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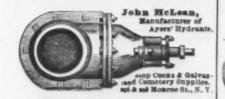


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Foreign Markets.

FRANCE.

Paris, December 15, 1886.—Metals.—There has been noticeable during the week a moderate demand for Metals at firm prices, so far as fin was concerned, an improvement in Spelter and a slight decline in Copper and Lead. We quote at the close in francs \$\frac{9}{2}\$ 100 kg. Copper.—Chili Bars. 102 \$\frac{1}{2}\$ 105; Ingots and Slabs, 109; Best Selected, 113, and Pure Corocoro Ore, 105. Tin—Banca, 275; Billiton. 273.75; Straits. 270; Australian, 272.50, and English, 293.75; Lead, 32.25 \$\frac{3}{2}\$.25, and Spelter, 38.50 \$\frac{1}{2}\$ 39.25. Iron.—In spite of the efforts on the part of dealers in this city to keep the Iron market depressed there is a confident feeling in the Domestic Iron regions in view of the large orders received for the army and navy. There is besides a most favorable impression prevailing in France as regards the general business outlook, induced by ample grain and wine crops and activity of a profitable nature spreading throughout our manufacturing regions, especially in the textile fine. This activity causes an increased demand for machinery, boilers, tanks, &c. The percentage of increase in exports of home manufactures is striking this year. Meanwhile our Northern Ironmasters have curtailed production another 5 \$\frac{2}{2}\$, causing the price of Finished Iron to harden under a steady consumptive demand. Foundries and hollow-ware manufacturers are doing remarkably well in that part of France. The Bolt demand on the other hand is slack; prices are nevertheless upheld by the combination. Coal is very active, but not highter.—Moniteur des Intérêts Matériels.

BELGIUM.

BRUSELS, December 15, 1886—Iron.—Orders have been booked more abundantly in Belgium during the week for Finished Iron, and in view of the advance of Pig which is taking place in all hands, the necessity of soon raising the price of rolling-mili products has been widely discussed. Still the syndicate has so far not been urged to take steps in this direction, and probably will not be till about a month hance, when preparations will begin to be made for the spring trade and a sound basis of values laid moderate enough to enable us to go on competing successfully with Foreign Iron at home and abroad and if possible give a great impulse to our export trade nearby and in the East. As regards the latter, Belgian makers have been singularly fortunate during the current year, especially in Netherland, India and other Eastern countries, and this valuable custom our makers are determined to retain if moderate prices and good products can do so. The foreign Iron and Steel movement in Belgium during the first 10 months has been as under: Importations.

	1000.	1990*
	Tons.	Tons.
Iron Ore	1,163,761	1,156,675
Steel Ingots	826	11
Steel Rails	182	286
Other Rolled Steel	1,526	2,576
Wrought Steel	188	889
Pig Iron	66,534	80,080
Old Iron	10,840	15,880
Iron Wire	2,620	2,420
Iron Rails	151	181
Sheet Iron	618	788
Other Rolled Iron	4,051	4,851
Nails	375	344
Wrought Iron	2,804	2,857
Castings	748	408
Total	1,254,224	1,267,446
Exportations,		

82,982 183,748 6,242 26,438 22,499 19,564 14,897 Total 472,348 468,465

Coal-Is active and gradually improving.-

GERMANY.

GERMANY.

Hamburg. December 15, 1885.—Iron.—During the week the Rhenish-Westphalian rolling mill owners have again been approached by both dealers and consumers for large lines of Finished Iron to arrive at ruling rates, but these orders have in every instance been declined, makers not wishing to tie their hands while the tendency remains from all appearances upward. A pressing demand has meanwhile set in for Wire Rods, Blooms, &c., for the United States. Meanwhile the upward movement in the Siegen district continues in Pig Iron and Thin Sheets as well as Spiegel; 8 to 10 % Manganese, at the same time commanding 44 marks \$ ton, and 10 to 12 % 47 % 58 marks; Merchant Iron, 110; Thin Sheets, B., 128 marks. In Upper Silesia the Iron demand has also been steadily on the increase, leading to an advance in Finished Iron and every article belonging to the Wire branch, but this cannot be said of Pig Iron, with respect to which it has as yet been impossible to establish a harmonious action among makers, some of the large producers still refusing to join the rest in the formation of a combination. Fig. Iron production in Germany has been 226,480 tons in October, 1885. Metals.—Lead has been quiet but firm; Copper wesker, Spelter has had a moderate sale at well sustained figures. We quote toward the close; German Lead, 18,50 @ 14; American Lake Copper, 15 @ 52; Spelter, 14,80 @ 15.9 spot; 14,20 @ 15 to arrive; Tin, 164 @ 108.—Borsenhalle.

BILIAGO, December 4, 1885.—Iron Ore.—An it has been raining most of the time little has transpired, and the ore shipped has been wet. There is a glut of steamers waiting to take their turn to load ores except at Oreonera, Luchana. Large steamers continue flocking in to load for the United States, among them the Pera, of Hull There were shipped so far to all quarters 2,907,910 tons of ore, against 8,138,731 last year. Pig Iron.—Shipments both abroad and coastwise have been free. To date 47,104 tons were shipped abroad, and 38,700 coastwise, together 88,804 tons.—Bilbao Maritimo y Comercial.

AUSTRIA.

Colombo, Ceylon, November 11, 1886.—Plumbago.—The market has been inactive, but steady, at ensuing quotations in rupees \$\frac{1}{2}\$ ton: Large Lumps, 125 & 150. Ordinary do., 125 & 140; Chips, 75 & 90, and Dust, 40 & 10. In addition to the 10,414 cwt. so far shipped to England since October 1, there were shipped to Hamburg 163 cwt., and to the United States 25,296, constituting a total of 45,813 cwt., against 18,411 in 1885; 17,362 in 1884, and

English Letter.

(From Our Regular Correspondent.)
London, December 18, 1886. THE SITUATION s a little stronger than it was a week ago,

is a little stronger than it was a week ago, almost all the markets being reported to be in a better condition. It does not appear to be generally understood why this augmented buoyancy should exist, and I confess myself unable to afford a satisfactory explanation or any explanation at all other than one couched in very general terms. So far as my information goes it conveys the improsestic conveys the improvement of t my information goes it conveys the impres-sion that many of the iron and steel works are finishing up the year in pretty good style and have orders on their books which will suffice to find them more or less employment during the early months of next year. In several instances the orders for 1887 have been placed at rather better prices than those which have ruled of late, while in other cases attempts have been made to provide for awkward contingencies by clauses as to strikes and "quotations of the time being."
In scarcely any case do I hear of a bold attempt to secure distinct advances, but that may be accounted for by the fear of the manufacturers that any open rise will be followed by strikes for higher wages on the part of the workmen. It is admitted, indeed, that there is a strong probability of labor troubles early in the new year, but while making that admission among themselves employers have no wish to precipitate matters by openly declaring higher prices. In addition, it must be remembered that there is a big filling-up process to be gone through before values can be augmented, and, unless the demand marches along at the same speed the increase of production will cer-tainly kill the chance of any rise at all. There is also the influence of the annual atatistics to be taken into consideration. These figures will not be available until the end of December as regards Scotland, and and of December as regards Scotland, and not until some time later in respect of Cleveland and the West Coast. The other districts may have their stocks ascertained still later, probably in February or March. It will be known, however, that we have still a reserve of about 2,500,000 tons of pig iron, of which Scotland has about 1,200,000, Cleveland about 65,000 tons and the West. Cleveland about 665,000 tons, and the West Coast about 150,000 tons. With this enor-mous surplus and more than half our blast furnaces at rest (perhaps 150 to 200 of them able to be restarted in the course of a couple of months) it is not very easy to perceive where any big rise comes in, even if we should have a good demand from the United States and Canada.

THE IRON TRADE

has manifested a stronger tone during the week, and nearly every department is re-ported firmer and more vigorous. Inquiries from the United States have been larger and have led to better business—so that, with have led to better business—so that, with makers' brands dearer in sympathy therewith, the warrant market has heen brisk and somewhat speculative. The closing price was 42/5½? ton. At Middleborough the monthly returns naturally induced sellers to take up a firmer position; and as a good deal of the iron of the district is in stronger hands than it was a few weeks back, transactions could not be done on buyers' terms: 22/0 or 3d, better than last back, transactions could not be done on buyers' terms; 32/9 or 3d. better than last week being obtained for prompt delivery. Forward dealings were not much sought after either by holders or merchants. The condition on the West Coast is still good, the market remaining firm, and 45/6 for mixed numbers, prompt delivery ruling. The prospect there is particularly encouraging, and with the turn of the year there is every reason to hope that things will be materially better. The same remark may be applied to Staffordshire, where the recent advance has been maintained, buyers being more ready with their orders. Tin, 104 @ 108.—Borsenhalle.

HOLLAND.

ROTTERDAM. December 12. 1896.—Tin—Some small dealings have occurred in March Billiton at 11.59%, and January at 61.75, with little offering.

SPAIN. regards inquiry and business done. In the heavier departments an improvement has likewise developed, and makers are less anxious for the immediate future than they were two or three months ago. Prices, however, have not advanced. For old materials there has been a strong demand, materials there has been a strong demand, and with a limited supply prices have gone up considerably, 60/ being readily paid for double-headed rails, and other kinds of old iron being stronger in sympathy. Freights for pig iron from Glasgow to New York by ordinary steamer remain steady at 6/ per ton. Steel is firmer, and in better demand at quoted prices. The great majority of works are reported as being well occupied, and some few are too full to take other orders for several weeks to come. Billets and blooms have advanced this week, and Vienna, December 12, 1886.—Iron.—Although the proximity of the holiday season has caused a dulatate of affairs generally and in the Iron trade particularly prices have been fully sustained. Owners of blast furnaces and rolling mills throughout Austria, Bohemia, Styria and Hungary having arrived at a perfect understanding as to output and price lists; this harmonious action continues exercising its beneficial influence, enabling all of them to get through the dulest season of the year without sacrifices, and with work enough on hand, without the necessity of discharging workmen. Meanwhile prospects for the coming year remain encouraging. We quote at the close in floring without sacrifices, and with work enough on hand, without the necessity of discharging workmen. Meanwhile prospects for the coming year remain encouraging. We quote at the close in floring without sacrifices, and mitted the proximal beams, 105 © 110. Melata.—Our market has been tame and unaltered: we quote: Copier, 56 © 58; Lead, 18; Spelter, 18,50; Tin, 130,50 © 131,50; Antimony, 26, and Quicksilver, 225.—Austrian Trade Journal.

EAST INDIES.

SINGAPORE. November 8, 1866.—Tis.—Since our circular of the 21th ult. only a moderate business has been done, holders refusing to meet the advanced hexhange. To-day the value is \$85,75 where the advanced hexhange. To-day the value is \$85,75 with the probability is therefore that a further advance may be noted before another week.

The present inquiries from the States are made mostly on behalf of iron works not having plant for making steel, but where iron-rolling plants exist, and can, it is thought, be utilized for turning out steel rails, steel rails are more or less actively inquired after, and prices remain firm at late rates. It is a question, however, as to Singapone. November 8, 1866.—Tin.—Since our circular of the 25th ult. only a moderate business has been done, holders refusing to meet the advance in exchange. To-day the value is \$35.75 picul. There is plenty of Tin coming forward, and shipments will again be large. To-mage.—Rates by steamer to London have declined to 15./. For New York the Vergine della Guardia has cleared, and the P. J. Carleton, now expected from Penang, takes her berth at last rates. For Soston there is no vessel loading. The steamer Brindial took for New York from Penang 430 picus, and the steamer Oxfordshire from here 252. Exchange has advanced to 3,445 for aix months' credits.—Gifflian, Wood & Co.



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this week at undeniably something better, rails not only are, but ought to be, 7/6 or 10/ ahead. That £4 has been paid is admitted, but it is argued that the circumstances were exceptional, the orders-viz. the Grand Trunk Railway and for Finland—not having been competed for. Against £4 being quoted as the legitimate market price, the Indian States contract is taken as a case in point. A fortnight ago it was rumored that the Dowlais Company had obtained that contract at about £3. 17/6, f.o.b. Cardiff, the section being 50 pounds and the order for 8000 tons. Taking this price upon the basis of pre standard section, it could not leave more than about £3. 15/ j? ton, f.o.b., and therefore it is in-correct to assume £4 as the current price. But the tenders for those rails were submitted fully a month ago, and it is a recognized fact that during the month the upward movement has been decided and weaked and it is her. the month the upward movement has been decided and marked, and it is by no means improbable but that £3. 18/ or perhaps a trifle more can now be obtained for a standard section. This view is supported by a transaction that is reported on good authority to have taken place within the last seven or eight days. It relates to the 5000 tons for the Indian States railways. As mentioned last week, the report is that it has been placed at a higher price than £3. 17/6, f.o.b. The principal inquiry in the market this week is for about 4000 tons for the South Indian Railway, a number of iron sleepers, and usual accessories. The Italian inquiry is now almost daily expected

is stronger to the extent of at least 6d. to non special brands and a few pence on warrants, which now stand at 43/2, as against 42/5 a year ago. There are now 67 furnaces at work in Scotland (42 on ordinary pig), as against 92 this date 1885. In Connal's stores there are now 840,080 tons of pig, compared with 655,883 tons a year ago. Shipments to date have been 365,468 tons, a decrease of 53,376 tons, and importations into Scotland of Middlesboro' pig 317,814 tons, a decrease of 38,242 tons this year. Current quotations are :

Deliverabl				No. 1.	No. 3.
Gartsherrie, a	t Glas	gow	 	47/	437
Coltness,	6.0		 	50/6	44/6
Langloan,	0.0		 	47/6	44/6
Summerlee,	6.5		 	49/6	44/
Calder	6.6			47/6	48/
Carnbroe,				44/6	41/
Clyde,	6.6			45/6	41/
Monkland.	8.6			43/6	39.6
Govan, at Bro	omiela	w	 	43/6	89/6
Shotts, at Leit	h		 	46/6	44/6
Carron at Gre	ngem	outh.	 	46/6	43/6
Glengarbock,				44/6	41/
Eglinton,		6.6	 	48/	39/3
Dalmellington		6.5	 	43/6	40/

MIDDLESBORO' PIG IRON is firmer, owing to the favorable returns showu below and the excellent figures issued by the Board of Trade returns.

Present prices are as under:

HEMATITE PIG IRON

is steady, under a good home and a promis-ing United States demand. As ore is dearer and freights are likely to go up, it is believed that prices will harden again shortly. On the West Coast there are now 47 furnaces in blast, as compared with 39 a year ago. In stores only the stock is 122,617 year ago. In stores only the stock is 122,017 tons, an increase of 23,450 tons since last Christmas. To date from West Coast ports pig iron shipments have been 492,943 tons, an increase of 36,213 tons, while rail shipments have been 334,083 tons, an increase of 78,140 tons this year. Mixed numbers are about 45/ to 45/6 per ton, and makers' brands are:

brands are :			
	No. 1	No. 2.	No. 3.
Cleator	46/6		45/
Lonsdale	45/	44/6	44/
Workington	45/	44/6	44/
lowther		44.6	44/
Distington	45/	44/6	44/
Solway	45/	44/6	44/
Maryport	45/	44,6	44/
Harrington	. 46/	45/	44/

THE BOARD OF TRADE RETURNS for November are much better than the similar statistics for many months past. They show that the total value of the imports was £33,050,955 or £3,307,187 more than in November, 1885. The increase was chiefly in raw materials for the textile manufactures, thus showing the improved condition of those trades. The exports were worth £17,569,692 or £1,105,442 more than in the same month of 1885. The total quantity of same month of 1885. The total quantity of iron and steel exported was 280,369 tons, valued at £1,767.420, compared with 230,-438 tons and £1,662,338 in November, 1885. Much of this improvement you will note is due to the better demand from the United States. Some of the leading figures of the returns are appended: returns are appended :

To the United States.

Articles.	Month of Nov., 1886.	Month of Nov., 1885.	Month of Oct., 1886.
Iron-Pig.tons	18,909	10,804	15,588
Bar, angle, rod, &c., tons.	30.12	275	225
Railroad, all, tons Hoops, sheets, plates, &c.,	20,657	87	2,948
tons	507	1,410	1039
Tin plates, tons	17,598	18,417	21,000
Cast or wrought, tons	274	20	SD()
Old, tons	8,868	1,945	7.947
Steel, unwrought, tons	14,666	2,154	24,463
Lead, all sorts, tons	18	52	.61
Steam engines, E	7,740	4.713	5,380
Other machinery, &c., £	41,809	28,346	46,274
Tin, unwrought, cwt	250	206	40%
Special return-	-		
Iron rails, tons	00 000	0.0	O DANK
Steel rails, tons	20,630	85	6,000

In London the stoppage of some 30 mills and the strike of the employees at some of the works have given a slightly better tone to the market, and buyers are now a trifle firmer in their quotations. As yet, how-ever, buyers have not responded, and it is not anticipated that any decided move will take place before the turn of the year. I quote ordinary IC cokes 13/@ 13/3 f.o.b.. Liverpool. At Liverpool there is a marked quote ordinary IC cokes 13/@ 13/3 f.o.b.,
Liverpool. At Liverpool there is a marked improvement in the tin-plate market, and business has been done at somewhat better rates than ruled last week. All Bessemer steel cokes and coke tins that were obtainable at 13/ IC have been recently taken up and offers

freely made for large quantities at the same price, but these did not result in business, as most quotations are now 13/6 IC, and indeed many will not quote at all. There is also a decidedly better demand for Siemen's steel plates with coke finish in certain sizes and good assortments, for which 13/9 IC is more easily obtainable now than 13/6 IC was last week. The quotations though are generally put to the Court of last week. The quotations though are generally put up to 14/@14/3 and 14/6 IC. The two latter figures being only for exceptionally good plates in the higher grades of brands. For ternes there would be plenty of orders forthcoming if last week's quotations were accepted, but all these are now changed and much higher figures are costed. accepted, but all these are now changed and much higher figures are quoted. Some few orders, however, have been given out, for which 12/9 @ 13/ have been paid this week. There is not much improvement to note in charcoal tin plates. There have been but few inquiries either for charcoals or best charcoals. The demand for coke tin wasters continued good and there are reported. continues good, and there are none to be had under 12/6 now and but few even at this, the price now quoted being 12/9@

THE HARDWARE TRADES.

In London there is not that demand for purely seasonable commodities that could be wished for, but some of the retail houses in London have been doing fairly well in such special goods as skates, fancy brass wares, electroplate and other presentation articles for Christmas. In the fancy trades, however, stronger complaints are made in more than one quarter, anent the falling off in the demand for German and French wares. Some of the agents for Berlin and other German houses have found the competition in bronzed vases, lamps, &c., and in stamped brass goods so keen that they have re-linquished their operations in despair, especially as some English firms, notably those in Birmingham and the Black Country, have during the past year or 18 months so developed the capabilities of their works, as to compete with foreigners in most kinds of stamped-brass work and lamp parts. The English patterns may not be quite so florid or intricate in design, but they are neater and more truly artistic than the designs pro-duced on the Continent. Stamped brass wares foreign make also are only selling freely, when in accordance with the English idea of simplicity and neatness. Consequently of simplicity and neatness. Consequently it is not surprising to hear that some of the German houses have closed their London establishments. At Birmingham, business continues steady and there is a cheerful feeling in most of the staple branches of that district. The upward movement in the United States, which may resume the pro-United States, which may assume the pro-portions of a "boom," and the satisfactory character of the Board of Trade returns for November tend to support the general feeling of hopefulness, and producers in several cases are already taking steps to profit by "the good time coming," by extending their plant and machinery. Prices show little improvement yet, excepting in certain brands of pig iron, steel ingots and sheets, both plain and galvanized, but raw material of every kind still rules very low. At Sheffield there is little change to report in the condition of local industries. The lighter branches are well employed, and in the silver-plate trade has been succeeded by a revival of activity. Cutlery houses are still busy, and in various establishments overtime has been worked to clear off outstanding orders. Tool-makers are doing a little more, and other branches are in a normal condition.

Calculating the Size of the Earth.

The earlier attempts, says the Popular Science Monthly, at calculating the size of the globe were based on astronomical observations. It would be difficult to-day to say within what degree of accuracy the figures then obtained could have been relied upon, as the units of measurement used by those pioneers have been lost and could not be compared with the units now in use. One of the earlier attempts at obtaining the actual length of the earth's meridian by direct measurement of a portion of the same was made in the sixteenth century by a French doctor. The means employed, although very ingenious, would be considered perfectly clumsy and inadequate by the modern scientist. There was in this early measurement no attempt at mathematical receiving an understood in the vresent cenas understood in the present c tury, and, considering the simplicity of the method employed by the doctor, it is aur-prising that no greater error was obtained in its final result. The measurement consisted simply in driving from Paris to Amiens, and counting the revolutions of the Amens, and counting the revolutions of the wheels of the carriage, and from the number of revolutions of the wheels obtain the distance between the two cities, which could serve as a basis for calculating the length of the meridian. Of course this calculation could not by any means be considered accurate but taking into account the means. courate, but, taking into account the means employed, the result obtained has been subsequently found to be wonderfully precise. The most curious thing about it is that what would now be considered grave errors and inexactitudes were so distributed that they slmost compensated each other, and the dimensions then obtained show only slight differences with the dimensions given by the most recent measurements. chance (and no better name could be found) permitted of the same results, with only a small final error, being obtained with that crude method that are now obtained with the most precise instruments and with the most complicated calculations.

From 1 ton of ordinary gas coal may be produced 1500 pounds of coke, 20 gallons of ammonia water and 140 pounds of coal tar. By destructive distillation the coal tar will yield 69.6 pounds of pitch, 17 pounds of creceote, 14 pounds heavy oils, 9.5 pounds of naphtha yellow, 6.3 pounds naphthaline, 4.75 pounds naphthol, 2.25 pounds alizarin, THE MOST EXTENSIVE MAKERS OF RAZOR STROPS IN THE WORLD.

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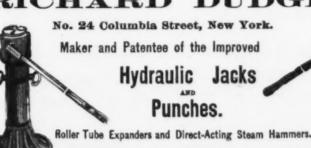
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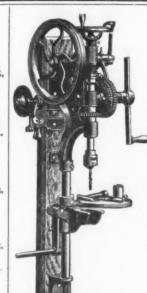
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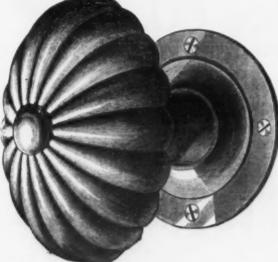
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THE WEEK.

M. de Lesseps in the course of a speech in Paris last week stated that 137,500,000 francs were still needed to complete the Panama Canal.

In a single day last week 40 men were sent by the police justices of this city to the Commissioners of Charities, on the plea that they were unable to provide for themselves. The New York charities department alone, not to speak of institutions disconnected with the municipality, are taxed \$3,000,000 yearly to sustain those dependent tramps who flock into the city to escape the rigors of winter.

Judge Peckham, of the Supreme Court at Albany, in his opinion concerning the Broadway Surface Railroad, says that while the corporation is dead its franchise and acts still live. The bonds, mortgages and lease of the franchise is property in the hands of other persons, whose rights must be respected. The case now goes to the Court of Appeals.

The Anchor Line steamers largely en gaged in the Mediterranean trade find it necessary, on account of the necessity for more ample wharf and storage accommodations, to remove from their piers on the North River to Brooklyn. Goods for Western shipment will be removed from Brooklyn by lighters and those for distribution will be carted to New York.

Work on the subway for underground wires has been suspended until spring, and several thousand feet of lead pipe ordered for the lower Broadway sections will be

The estimated cost of a double steel-lined vault of \$100,000,000 capacity, for the storage of the coin surplus of the United States, is \$106,673.

A ladle containing 6 tons of moleen steel burst in Carnegie's Pittsburgh steel works last week, probably fatally burning four employees.

Consul-General Raine, at Berlin, writes to the State Department respecting the reckless extension of the sugar industry in Germany, and the crisis precipitated by overproduction, greatly affecting general trade and finance. The most dangerous opponent present, France, whose production under the protection of high duties and an enormous export bounty is rapidly increasing. The manufacturers who have accepted the new duty upon raw material are exempted from taxation upon sugar when the amount of yield obtained by pressing process exceeds 5, and when obtained by the process of diffusion exceeds 6 per cent., while other factories in France are even exempt to the extent of 8, and in the colonies of 12 per cent. The object is clear -encouragement of the cultivation of the best raw material to produce the largest quantity of sugar pos-

The packing of a single kind of vegetable this year amounts to 55,500,000 cases or 2,314,460 cases, against less than 1,500,000 would be difficult to assign a limit to the future demand for tin cans used in the preservation of fruits and vegetables. These

Lieutenant Kimball, of the navy, states that eminent engineers have for some months been employed by the Panama Canal Company in perfecting a plan for constructing the water in the proposed artificial lake is coal where the latter is used in large quan-In other words, the proposed summit level is to be about 114 feet above the sea level and the level of the terminal sections of the canal. At each end of the summit level there must be locks enough to cover this difference. The locks, we are told, are to be like those designed by Engineer Menocal for the canal in Nicaragua. The new plan will require at least four locks on each side, or eight in all, and the cost cannot be less already incurred, whereas the Nicaragua cording to Menocal's estimate, was to cast only \$51,234,000.

The Massachusetts Institute of Technology, President Walker represents, is extending in size and usefulness The number of students is steadily increasing.

The manufacturing interests throughout the West are watching the natural-gas development with no small degree of interest. One company who own 16,000 acres of gas territory in Kentucky have leased 20 000 acres more and are already producing 15,-000,000 cubic feet a day from two wells. Fifteen more wells will be sunk as soon as machinery can be had. The syndicate will stand that, whatever the volume of curlay a 16-inch pipe across the Ohio River, thence to Ironton and Cincinnati. A power- as to serve the uses of the country, and that ful vein of gas has just been struck in In- no more will be retained than will suffice for diana. Gas lines are to be laid from the that purpose. However much the volume

A nine-story marble office building is about to be erected on Chestnut street, Philadelphia, for A. J. Drexel, to cost \$500,000.

Extensive harbor improvements are contemplated at Buenos Ayres. One of the plans under consideration is to construct a line of inshore docks with an entrance canal, at a cost of \$4,000,000.

Window glass was first made in the United States at Pittsburgh, in 1795, at which time James O'Hara and Major Isaac Craig established a factory there. In 1802, General O'Hara made the first flint class From that day to the present Pittsburgh upon them, of whom a large number are has been the acknowledged center of this class of manufactures. Of window-glass factories proper in Pittsburgh there are 29 in operation in the city and suburbs, and one devoted to the making of plate-glass. The total product of these 29 furnaces, with their 276 pots, has an annual value of \$3,-000,000

> The Hudson's Bay Company, at their ecent annual meeting in London, reported a satisfactory condition of the fur trade. They do not find that the fur-bearing animals are disappearing, or that the receipts are decreasing in conseuence of the arrival of settlers. The furs gathered are now sent over the Pacific Railroad, instead of around Cape Horn, as formerly.

The St. Louis Cable Railroad has been sold to a Boston syndicate, netting the projecters of the enterprise about \$250,000. The property is yielding 'a 'handsome

The boiler of the electric light plant at Fostoria, Ohio, was blown to pieces on Saturday while the engineer was experimenting with a new fuel.

The question of protecting the steel observatory tower at the Universal Exposition to be held in Paris was referred to a committee of French electricians. They decided that it would itself be a gigantic lightning rod, and that if only care was taken to maintain adequate metallic connection with earth deep enough to be permanently moist. not only would those inside it be perfectly safe during the most violent thunder-storm, but everything near it, and for a considerable distance around it, would be protected. The earth-plates will be of copper, and will be connected with each angle of the base of of Germany in the sugar market is, at the tower by substantial cables. The top is to have a tall copper rod with a gilded point.

> A suit for damages brought against the Henderson Bridge Company by two contractors named O'Connor and McCullough was decided at Louisville, 24th inst., before Judge Harris in the Law Equity Court, the jury giving a verdict of \$86,805 for the plaintiffs. An appeal will be taken.

By the burning of the Temple Theater building, in Philadelphia, on Monday property was destroyed to the value of \$400,000. The loss of the Niles Tool Company, one of and the use of the most perfect machinery | the occupants, is estimated at \$14,000; Fairbanks & Co., scales, \$75,000. The fire started from a gas jet.

It is said that the Cunard Steamship Company, piqued by the withdrawal from their line of the English mail service, are precases in 1885, and still the cry is for more. It paring to build steamers larger and faster than any now running, and to start from London direct via. Plymouth. The new steamers are to follow the style of those of the North articles of food are not only consumed all German Lloyd as to capacity, both as rethe year round, but around the globe as gards freight and passengers, and are to have twin screws. A radical change is talked of as regards fuel, the design being to use gas instead of coal. Experiments with gas manufactured from crude petroleum have been in progress at the principal steel works at Glasgow for some months, dams and locks, to be substituted for the and it is asserted that such a degree of perold plan, which provides for an open cut at | fection has been reached that the new fuel the sea level. Lieutenant Kimball says that may be safely trusted to take the place of

> It is reported that the Union Bridge Company will bring suit against the Harlem Bridge Commissioners to recover damages for alleged breach of contract. The commissioners deny that any contract was made with the company, the negotiations having never been completed, but the company claim to hold papers showing that their bond had been approved and ordering them to proceed with the work. Finally a contract was awarded to the Passaic Rolling Mill Company and Miles Turner for \$2, 055,000.

> The Comptroller of the currency, Wm. M. Trenholm, met the bank presidents of Philadelphia at the clearing house in that city last week and by invitation gave his views in regard to the national banking system. He said: "The banks of the great cities have functions of their own quite different from those in the country, the former being left to care for the surplus funds and to supply deficiencies when they may arise, Members of Congress entertain the idea that the same law that governs corn in its periodical changes of supply and demand controls money. It is difficult to get them to underrency, it becomes distributed in such a way

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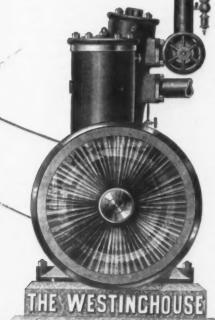
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load for which each hoist is built.

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little or no legislation on the national banking system, and I think we should benefit tem is greatest in those parts of the country is needed is more money; that the cure for all those things that need cure is to be found simply in increasing the volume of circulation in the coinage of silver dollars, in the issue of silver certificates, and in the taking off of the tax on the State bank issue. What is most needed," added the Comptroller, "and what I most desire is that you gentlemen will educate your representatives in Congress in the elementary principles of finance that govern the national banking system of the country."

The 12 pickets of the Knights of Labor who became obnoxious to the mill owners and manufacturers at Amsterdam, N. Y. declined to give \$250 each as security for good behavior and went to jail.

The car works of Schall & King, at Middletown, Pa., were almost wholly destroyed by fire on the 24th inst., causing a loss of \$150,000. The foundry and office were saved, but the machine shops and a large quantity of finished iron were lost.

The experts engaged by the Third Avenue Railroad Company to examine the Bentley & Knight electrical railway system of Providence have submitted their report to Presidens Lyon. The road they examined was one 800 feet long, built with one sharp grade of I foot in 20, and an abrupt curve of 45 feet near the end of the line. One small open car is operated by an electric motor of 25 horse power, and 1500 pounds weight attached to the bottom of the car, From this motor the power is applied to the axles of the car by gearing and side bars similar to those used on locomotives. In a tube between the rails is placed the electrical conductor for the transmission of the current to the car from two 10 horse-power dynamos at the central station. Levers to cut off or reverse the current are placed at each end of the car. According to the report the motor performed its work in an Steam Pump Works, entirely satisfactory manner. The car was stopped and started at will and fulfilled all the requirements. The expenses of electricity would be at least 25 per cent. greater than that of the cable.

Once more a heavy flow of oil is reported from wells in Egypt, but of the resources of the country in this respect very little is yet

In accordance with the decree of the United States Court, the receivers of the Central Railroad Company of New Jersey will take possession of the Central Railroad of New Jersey, with its branches and leased lines, and of all property appertaining thereto, on the first day of January, 1887.

The New York Steam Company have purchased the submerged lands outside the Hudson River Railroad tracks between Eighty-sixth and Eighty-seventh streets and the proposed exterior street along North River, laid down on the "Veile map" of the Park Department. The company is said to contemplate the expenditure of \$500,000 for the erection of a big heating station and to supply heat to the entire district west of Central Park, two miles below and above Eighty-sixth street. It is intimated that it is not unlikely that the enterprise may embrace the building of a tunnel under Riverside Park.

The new Chinese legation at Washington s the largest in the Diplomatic Corps, and the largest ever sent by China to this Government. It numbers 16, including the American secretary. There are four secretaries, two translators, one interpreter, six attachés and two military attachés.

Dock Commissioner Stark, of this city, says that there will be a number of new docks built the coming year, besides a considerable outlay upon old ones. It is probable that some of these docks will be built of creosoted wood, prepared by the processes which have proved valuable in the Southern waters as a protection against the toredo.

The recent importation of some English rabbits excites fears that the "rabbit pest," which has brought desolation to once fertile tracts of territory in Australia, may be experienced in the United States and prove incalculably worse than the detested English sparrow. The United States consul-general at Melbourne estimates the destruction in Victoria to have been equal to \$15,000,000 in the loss of crops, rents, &c. About 500 miles of rabbit-proof wire-net fencing have also been erected in Victoria at a cost of about \$400 per mile. Rewards have been offered by councils for rabbit skins and payments have been made for about 157,000 dozen skins. Other colonies are suffering in like manner.

Consul-General Hanna, of Buenos Ayres, favors the extension of the Brazilian steamship line to Buenos Ayres. He believes the trade of the Argentine Republic to promise greater advantages than the trade with Brazil as it now exists, and sees no reason why American merchants should make Rio a terminal point when a better market is within that the business of the company had intheir reach 1000 miles down the coast.

In Brooklyn 11 lines of city railway were tied up on Thursday, to the serious injury by our 20 years of experience. I maintain that the value of the national banking systration, Mayor Whitney and the railroad where its development is the least. In ad- presidents the executive board of the Knights vancing the view that the only way to of Labor accepted terms which were offered attract capital is by the improvement of the for the resumption of traffic on the lines. system, I was met by the view that what The men claim that their principal demands were conceded. The whole affair will be investigated by a committee of the Board of Aldermen, assisted by the Corporation Council.

> Pliny Nickerson, a large shipowner in Boston, made an assignment, with \$220,000 liabilities. He owned a large number of vessels, and these have been earning practically nothing for the last three years.

> At the State Department it is said that the negotiations with Spain in reference to our trade with Cuba are progressing very satis factorily.

Cholera in the Argentine Republic has many victims, and all merchandise from thence arriving at the New York quarantine is thoroughly disinfected.

The total number of immigrants arrived in the United States during November last was 31,629, and during the 11 months ended November 30, 365,577. This is an increase as compared with last year of 11,559 for November and 50,032 for the II months. The largest number from any one country was 80,683 from Germany; England and Wales comes next with 55,888, and Ireland next with 51,461. From Sweden and Norway the number was 44,004; Russia, Finland and Poland, 30,197; Italy, 27,631; Bohemia and Hungary, 21,328; Austria, 16,494; Scotland, 13,215; Denmark, 6369; France, 3730; Switzerland, 4339; Netherlands, 2560, and all other countries, 7678.

Paraffine, as an article in commerce, 18 becoming important. This wax, although the residuum of the most offensive product imaginable, being the tar deposit left after the kerosene has been extracted from the crude petroleum, is made into the purest and sweetest of substances used in the most delicate of industries. Said a practical refiner of oil while referring to the importance the paraffine business has reached: the insulation of electric wires paraffine wax has taken the place of everything else, and as the electric lighting system increases in extent the demand for this wax must neces sarily become proportionately greater. It is the only wax that will defy the action of sulphuric and other acids, and it cannot be adulterated for that reason. It has displaced all other wax in the manufacture of candles. The paper manufacturers have found it an indispensable article in their business, and all waxed papers are now coated with refined paraffine. Fine cutlery and hardware cannot rust when wrapped in paper waxed with paraffine.

No less than 3500 coal cars are sidetracked on the Reading Railroad in conse quence of a strike at Port Richmond, the shipping point. The resolution passed by the Knights of Labor, if carried out, will affect 25,000 men, including all the engineers and machinists in the employ of the company outside of the mines.

The proposal to construct a commodious seaport at Wiscassit, Me., as a terminus for the Canadian Pacific Railroad is much agitated in that part of the country. The channel is wide and 50 feet deep, and the entire distance from Quebec is 214 miles. The route from the Northeast to Liverpool, it is claimed, would be 250 miles shorter than any other. About \$3,000,000 would complete the line.

The local assemblies of the Knights of Labor have been locked out by the Detroit Dry Dock Company, who are extensively engaged in iron shipbuilding. Meanwhile, circulars are being distributed through the Eastern States, warning ship carpenters to keep away from Detroit until the difficulty is settled .

The disposal on the part of Germany of ome \$3,500,000 of its surplus silver to the Egyptian Government may be regarded strictly as a commercial transaction. Germany has had a surplus of this class of currency ever since its last war with France.

Wm. P. Shinn, vice-president of the New York Steam Company, has been elected president and general manager of the New York and New England Railroad, which is now in New York control.

Russian oil of the low grade has been admitted to the Austrian and Hungarian market as crude petroleum, and not as semirefined, thus paying only about half the duty imposed on American crude petroleum, but the Austrian Gevernment is now moving to exclude the Russian mixture in the interest of the public revenues.

The largest steamship corporation under the British flag is the P. and O. Steam Navigation Company. Exclusive of vessels now under construction, the list comprises 200,000 tons, costing nearly £6,000,000 sterling. During the last seven years they have laid down 82,000 tons, and altogether expended in new ships and improvements \$2,800,000, or about £400,000 per annum. At the recent annual meeting it was stated creased, but the receipts have diminished.

New York, Thursday, December 30, 1886.

DAVID WILLIAMS. - - - Publisher and Proprietor. JAMES C. BAYLES, - - Editor. CHAS, KIRCHHOFF, Jr., - Associate Editor.
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Is the Iron Trade of New England Declining ?

From time to time a number of newspapers in New England seem to have made it their special business to insist that the iron and steel trades of New England were declining at so alarming a rate that at an early date the ancient industry of that section will have passed away entirely. With the object of throwing some light on this subject we have addressed a letter to a number of the most prominent manufacturers, whose replies we place before our readers. One firm long well known write as follows: "We venture the assertion that the production of bar and rod iron by the rolling mills in New England has at least kept even pace with the demand, and that they continue to hold the patronage and support of the New England dealers and consumers. Quality, excellence of finish, no less than favorable prices, have rather aided our iron masters in keeping their old lines of trade, and have an income sufficient to provide him the neserved to open up new connections, so that gradually increased output has been absorbed lation of foreigners was repealed. At the satisfactorily both to buyer and seller. We time silver declined to 42 1/2 d. in London believe the several New England mills to be Mexico came near being plunged into a in good condition in every way, and that monetary and commercial crisis; fortunately years of usefulness with reasonable profits the decline was gradually followed by a are yet ahead for them." A second con- steady recovery of about 10 per cent. While cern, it will be observed, to some extent the depression in the value of silver lasted agrees so far as its specialty is concerned merchants had to advance the price of imwith the alarmist views to which we have alluded: "On other branches of iron and steel manufacture I do not feel competent to express an opinion, but so far as the plate business is concerned I can say that I think rangement for a new mortgage loan, the the statements you allude to are correct. Our company is now in liquidation. We are only running one mill in a small way on to its completion. When completed it steel plates, the ingots being furnished by will measure 1334 miles in length. The other parties, and I see the trade that we share capital of the reorganized company formerly held almost exclusively now supplied has been fixed at \$33,350,000, with a 6 per by others. I think I notice that this state cent. bond issue of \$52,890,000 on first, secof things has largely increased since we gave ond and third mortgage. Minister John W. up manufacturing on our own account. I Foster, while in the City of Mexico in Novemam sanguine enough, however, to believe ber, made a supplementary contract with that the present state of things will not long the Mexican Government by which the Mexcontinue, and think I see a fairly prosperous ican Central Company are authorized to orfuture for the continued manufacture of ganize separate companies for the construcplates here." A third sends us the follow- tion of the Guadalajara and the Tampico ing note: "We employ upward of 200 men. branches. President Wade, of the Mexican We were incorporated in July, 1855. In Central, is now in Europe completing ar-January, 1875, our mill burned and was re- rangements for carrying out the contract never closed our works, and are running full pany propose to complete the Guadalajara to-day and expect to for some years to come. Herald had an editorial on the decline of the Government granted an important concesiron industry in New England which was sion for the building of a railroad 384 untrue and gave a wrong impression, but miles in length from the capital to arrival of the vessel at Liverpool, when an supposed it was made carelessly to bolster Acapulco, or some point mearly on the examination which was at once made ex-

prestige of New England as an iron pro- capital to the port of Tuxpan on the Gulf of in the Engineer, a throttle-valve 4 feet in ducing and steel manufacturing center is simply from neglect of the manufacturer in \$25,000,000. The reformed concession tracted the passage to an orifice 4 feet in keeping pace with the improved and granted by the Mexican Government to the diameter, was placed in the pipe a short economical methods of heating and produc- Sinaloa and Durango Railway Company, a distance above the junction of the two ing iron and steel. A modern mill to day in Boston organization, authorizes the company branch-pipes leading to port and starboard. my judgement can successfully compete to construct four distinct lines, the first from This valve was of cast iron 11/2 inches with Pittsburgh or any city in the West if Culiacan to Altata; the second from Durango they will construct an economical mill. to Mazatlan, Villa Lordo and Saltillo; the metal 21/2 inches in diameter. One of With improved gas furnaces steel can be melted at a cost of not over \$1 per ton. Most of the material entering into the manufacture of crucible steel is imported. Hence they have the saving of freight on both raw and finished material. Such being the case, and if the truth was actually known, the cost of natural gas would equal the cost to a New England manufacturer with modern methods. The only saving to a Western manufacturer would be difference in price of coal, which would not overcome the difference in freights on raw and finished material. Our business has been on the increase from year to year, and our orders are limited, owing to want of capacity. Also two years were: we have advantage on the saving of freights on imported material, being able to import and sell a finished product in competition with some of the largest steel producing companies in the country."

It will be noted that manufacturers are far from indorsing the views so industriously circulated to the detriment of the iron trade of New England. One branch not represented in the replies given above is the nail trade. This department has suffered very keenly from the long depression which has weighed upon the industry of the entire country, aggravated by the revolution going on in favor of the displacement of iron by steel. One of the New England mills is preparing to meet this contingency, but taken generally the failure of the smaller concerns is very seriously threatened.

Our Mexican Trade.

To judge from the arrangements which the Mexican Government has succeeded in making with its foreign creditors and several railroad companies, Mexico is in a fair differences with this country have commanded prompt attention, Mexico appearing well disposed to so amend home legislation as to prevent for all time to come a recurrence of disputes of the kind with her northern neighbor. The conversion of the foreign debt of \$150,000,000 into 3 per cent. bonds was accomplished through the Mexican financial agent in London and the banking firm of Messra. Glyn, Mills, Currie & Co. of that city having been unanimously approved by the bondholders at their general meeting of June 30. The first new coupon was paid on July 1, and for the second coupon, falling due on January 1, 1887, the funds are in readiness. The interest amounts to 1 per cent. for 1886, 13/2 for 1887, 2 for 1888, 21/2 for 1889, and dating from January 1. 1800, the interest will be 3 per cent., pay able in two coupons of 11/2 per cent.

Serious steps have been taken to get the individual States of Mexico to relinquish the absurd interstate mutual taxation, in the shape of duties levied at their respective frontiers, one of the greatest impediments in the way of the free development of internal trade, especially now that railways intersect the country On July 7 the new law was formulated relating to the rights of foreigners, providing that any foreigner may be naturalized in Mexico after two years residence upon furnishing proof that he is in the full enjoyment of civil rights in his own country and that he has a business or cessaries of life. The compulsory matricu ported goods, leading to temporary stagnation in trade.

The president of the Mexican National Railway succeeded in perfecting an arsettlement of all controversies and the reorganization of the road with a view With this exception we have signed by Mr. Foster. The Central Combranch by the end of next year, and the

third from Culiacan to Mazatlan and these was prolonged through a stuffing box Alamos, and the fourth from Durango to and fitted with a lever worked by a handsome point of the Rio Grande River after passing through the State of Coahuila, surveys to begin within six months, and work to begin within three years. The the object of the builders in putting in capital is limited to \$20,000 per kilometre, and the subsidy is fixed at \$7000 a kilometre. The Vera Cruz road began using steel ties in 1834, and has now 20,000 of them on its bed; 40,000 more have been ordered from England for use this year, and it is proposed to put in from 40,000 to 50,000 per year hereafter. The Mexican Central Railroad Company's earnings for

| 1885. | Gross earnings \$3,555,841 | Gross earnings \$3,742,221 | Operating ex-penses 2,419,457 | Operating ex-penses. 2,419,457 Net earnings. \$1,831,618 Net earnings. \$1,832,764 Net earnings. \$1,8

American Trade with Mexico for the Fiscal Year, 1886, was as follows:

| \$10,973 | \$10,973 | \$10,975 | For 1885 it was as follows : | Merchandise | \$10,905 Merchandise......\$9,267,021 Silver.......14,919,611 \$7,870,599

A considerable amount of the silver is in transit to Europe. Instead of a decrease, our domestic export would have shown an increase if the Committee of Ways and Means, enabling act to carry out the ratified reciprocity treaty had not met with defeat in that body on May 25. Whether the treaty will or will not have a better fate in the future is a matter of uncertainty. Meanwhile, whether there exists such a treaty or not, the fact that there is all rail between the two countries goes on way of entering upon an era of renewed fostering commercial relations naturally, and prosperity. The Cutting case and minor the revival in railroad building will powerfully assist in enlivening and extending them. At any rate, in spite of the many obstacles still existing, great changes occur favorable to American trade. Thus one of our consuls reports to the State Department as follows: "The completion of the railways leading to the United States prejudiced the market and greatly diminished the production of cotton in Mexico, as cotton can now be imported without the expense and delay that were hitherto unavoidable. The Mexicans complain that the advent of railways has not only injured the producers of cotton at home, by facilitating the importation of American cotton in the degree necessarily the consequence of cheaper and quicker means of transportation, but that by special and personal rates of freight the railways have discriminated against Mexican producers. effect of this reduction in favor of foreign cotton has caused Mexican cotton to fall in the market to \$11 or \$12 per cwt., at which price the profit of the producer is so insignificant that the cultivation of cotton is

discouraged or prevented." The export of American cotton to Mexico, where it is apun and woven into cloth or manta," is by no means a trifling matter, as the following particulars will show :

Fis 1870 1870 1870 1870 1870 1880	3.						 		 		 	 						3,969,812 3,422,162 9,898,129	Value. \$890,574 462,902 857,210 912,558 1,126,067
	7	n	al	ki	n.	l			 									84,144,221	\$8,799,836
1891 1851 18*8 1684	1.										 							18,386,186 12,587,650 20,577,771 11,184,207 5,877,000	\$1,494,101 1,447,522 2,217,259 1,195,396 613,251
	ı	N	of	te	s.i	١.	 0	0		0		0	0.1	0.0	0	0	0	68,562,814	\$6,907,529

In other words, the opening of railroad traffic on a larger scale in Mexico, doing think, too ingenious to fall back upon the give strength to that argument. away to a considerable extent with the transportation of home-grown cotton overbad which is so satisfactory to all concerned mountain roads from the plantations to the mills on the backs of mules, has about doubled the consumption of American cotton the last five years. Similar experience can hardly fail to be made with other commodities, Mexican or American, during the growing intercourse between next-door neighbors, with or without a reciprocity treaty. What lower duties cannot do lower freight rates by rail may accomplish.

A general overhauling of the machinery of the steamship Great Eastern, after her remarkable trip about seven months ago, from Milford Haven, England, to Liverpool, has brought to light some very interesting facts. In the account of the voyage which we reprinted at the time from the London Engineer, allusion was made to a mysterious accident which occurred to the main steam-pipe, three holes being punched in it, so to speak, from the inside, when the We remember that in November the Boston Tampico branch by September, 1888. The pressure in it did not exceed 5 pounds. The probable cause of the mishap was a subject of considerable speculation until after the their free trade notions." A fourth com-munication touches a branch in which the years. No subsidy is asked. Meanwhile iron, riveted like a boiler shell, and at one

as our experience goes the waning of the cession for a line of railway from the eter outside. According to a later account thick, and turned on two gudgeons of gun wheel and screw from the engine-room. As there are in addition four throttle-valves, one for each cylinder, in the branch-pipes the huge 4-foot valve has been diffi ficult to imagine. On the trip from Milford Haven one of the gudgeons mentioned gave way, the valve broke in half, and the sharp edges of one portion falling a hight of about 6 feet, knocked three holes in the steam pipe. Until after the examination when the vessel had reached Liverpool nothing was known of this smash. The condition of the pipe as re vealed by the inspection made by Mr. Jackson, the chief engineer of the ship, was, as our contemporary describes it, simply appalling. A hammer was driven through it easily in many places, and portions of the plates, which were cut out and retained for inspection, are said to more nearly resemble old rusty iron tea trays than sound plates. The lives of all in the engine-room hung on a thread during the trip which had just been completed. One of the most remarkable points of the whole story is that the machinery of the ship had passed the inspection of the British Board of Trade and was pronounced by that body to be in thoroughly good condition. It need scarcely be renarked, however, that though the size, age and long period of disuse of the steam-pipe should have been sufficient to invite careful attention to it on the part of the inspectors. the examination, if indeed there was any at all, must have been conducted in a very superficial manner. Whatever difficulties may have promised to grow out of this discovery seem to have been effectually smoothed over, and it is quite probable that the whole matter has been forgotten by this time. The fact, nevertheless, remains that the reputation of the Board of Trade, whose verdicts have always been relied upon with much confidence, was staked upon a more than ordinarily careless piece of inspectors

An Unexpected Vindication of Protection.

Mr. Edward Atkinson is too great as a statistician to be the free trade doctrinaire which be undoubtedly is. In a communication to the Bureau of Statistics, prepared by the request of Mr. Switzer in reply to certain inquiries propounded by Senator George, of Mississippi, Mr. Atkinson compiles some very interesting statistics which show as conclusively as statistics can that at no previous time in the history of the country was the working man so well off as he is at present. He shows that within 25 years the profit-earning power of capital has been diminished by 75 per cent., but that the mechanic and artisan can procure 80 to 100 per cent. more for his year's work than he could 25 years ago, while a common laborer, without skill in any line of manufacturing and whose only capital is his strength, can procure from 40 to 50 per cent. more. If, when disposed to launch a statistical thunderbolt at protection, and to deride its benefits as seen from the standpoint of labor, or to denounce its oppression when measured by the exaggerated gains of capital, Mr. Atkinson will recall the figures we have quoted, he will perhaps lay down his facile pen and think whether he can reconthe earnings of labor concededly increased rower of the Germans reaches its limits. an unreasonable advantage nor labor suffered a grievous wrong from the protection of domestic industry. Mr. Atkinson is, we argument that without protection that would have been a great deal better. He could not sustain such an assumption arithmetically, and would not, we think, descend to so cheap an expedient in discussion.

That we may not be accused of misrepreenting Mr. Atkinson's present position we quote him more fully. Concerning labor and wages he says :

"A computation has been made of the daily wages given in the census, volume No. 20, from more than 60 establishments with which there were connected one or more engineers, one or more blacksmiths, machinists, painters and car-penters. The wages of these specific classes have been singled out and averaged, all of them being mechanics, who were in continuous employment. In 1860 their daily wages per day was \$1.50 in gold : for a year of 200 days, \$468. In 1864, \$2.34 in paper, and for the year, \$702. In 1870, \$2.49 in paper, \$747 for the year. In 1875, \$2.29 in paper for the year, \$667. In 1880, \$2.26 in gold, \$678 for the year. In 1885-6, not less than \$2.40 per day, for the year. \$720.'' Next, as to what the dollar would buy: The same quantities of the same articles in-cluded in the standard at the average of retail prices in 20 different shops—10 west of Buffalo and 10 east of Buffalo—cost for a single day's supply in 1851, 30 to 96 cents; in 1865, under the influence of war and paper money, 55 to 69 cents; in 1870, when the country was fairly heading toward specie pay-ment, 48 to 58 cents; in 1875, 58 to 69 cents; in 1880, the year after the resumption of specie paytheir free trade notions." A fourth communication touches a branch in which the situation is somewhat different. "As far leading to the situation is somewhat different. "As far leading to the situation is somewhat different." As far leading to the situation is somewhat different. "As far leading to the situation is somewhat different is somewhat different is somewhat different is somewhat different is somewhat differen

1860, and are now \$2.40 per day, or \$720 per year, while a single day's supply of everything needed, except house rent. cost 31 cents per day in 1860 and 30 to 31 cents per day in 1866. The number of days' portions of the standard supply of material for food, clothing, boots and shoes and fuel which one year's earnings would purchase would stand thus: thus:

* Or more.

Again, with each of these establishments there were connected more or less common laborers, and by the same measure and method applied to their annual income we ascertain their condition have been as follows: In wages in 1860, \$808; purchasing power in standard portions of food, fuel and materials for clothing, 980, in 1865, \$469, or 840 portions; in 1870, 1090 portions; in \$468. or 840 portions; in 1870, 1090 portions; in 1875, \$414. or 1070 portions; in 1880, \$402, or 1210 portions; in 1885, \$430, or 1261 portions or more. Of the relative earnings of capital and labor he says :

The power of capital, considered as capital to The power of capital, considered as capital to secure income, has been diminished by 75 per cent. in 25 years, yet such has been the vast and rapid increase of product that the share of the capitalist, measured in dollars, is probably as large in fact now as it was in 1860, although so much less in proportion. But the laborer who possesses skill and aptitude, as has been proven, can procure 80 to 100 per cent. more for a year's work than he could in 1865 and a common laborer can procure. could in 1865, and a common laborer can procure from 40 to 50 per cent. more. Thus, while the rich may have grown no poorer, the poorer have stead-liy become richer.

As material for an argument in defense of protection we could ask nothing better than Mr. Atkinson has furnished. It seems to concede all that the advocates of protection have prophesied or claimed.

A very sharp jealousy has sprung up

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ately between English and German man-

ufacturers, chiefly because the former have finally awakened to the fact that the aggresiveness of the latter has cost them quite an important share of their markets, and because they recognize that many others need close watching. In the steel-rail trade, however, a revulsion of feeling appears to be gaining ground in England. When the International Syndicate was formed the English works conceded to the Continental mills 37 per cent., we believe, of the compet tive trade. The result, we are told, was that consumers in different parts of the world who had until then ooked askance at the German product, mistrusting its quality, reached the conclusion that it was certainly as good, if not better. The English works, therefore, paid dearly for peace and have suffered keenly since. Open warfare followed the disruption of the pool. They carried the war into Africa, however, and, aided by the leading Belgian producer, thoroughly demoralized the home market of the Germans by bidding low on Government contracts. The German authorities gave them little business, but used their bids to force the domestic works down to nearly the same level. Naturally the English works are jubilant over the cries of distress which emanate from the fatherland, coupled as they are with a strongly-expressed desire to pull the old combination into shape again. We have good reasons for believing that at least one of the leading German works is not in favor of such a movement. and that two great English firms will hold aloof from it. Under these circumstances it would not be safe for American steel makers to attach too much importance to the rumors alluded to, especially since it is hinted that they have some connection with a movement to bull the stocks of some of the steel companies at the Berlin Exchange. American producers and consumers of steel in the form of rails, blooms, billets, slabs, and particularly of wire rods, are deeply interested, because our markets are directly affected. We notice that English trade papers incline to the opinion that the German works are greatly hampered by the protective tariff of that country, and one of cile views so divergent. If the profits of them broadly states in a recent issue that capital have been reduced 75 per cent. and "when this protection ceases the competing 100 per cent., capital cannot have enjoyed The enormous business done by them in wire rods in all parts of the world, and in some instances right under the noses of English works, is certainly not calculated to

> Power distribution from central stations will probably be introduced into San Francisco at no very distant date. The project, so far as we can learn, was first brought forward several years ago, the intention at that time having been to form a company to put down pipes for compressed air on about the same general plan as that adopted by the English company at Birmingham. It was found, however, that the number of consumers of the power would have been too small to have warranted the heavy expenditure which an undertaking of this nature would have entailed, and beyond suggesting the advantages to be derived from such a system of power supply nothing, therefore, was done. With the development during the past few years of the manufacturing interests of the city, especially the increase in the number of establishments where small power is needed and small steam or gas engines are maintained to supply it, the subject of central power stations has again come into prominence, and as a result finally a company has been organized to lay down and maintain and operate a system of pipes for conveying steam, hot water or fluids other than gas or electricity. The special fluid to be used has, we believe, not yet been determined upon. Whatever difficulty there

come, and with a reasonable degree of activity on the part of the new company it ought not to be long before the city of San Francisco will be in position to enjoy the not altogether unalloyed pleasures of power distribution on a large scale. What these will amount to if either high-pressure steam or hot water be conveyed through the mains can easily be conjectured from the experiet ces of the New York Steam Company.

It is gratifying to learn that there is now in session a board of arbitration or shop council, to consider and adjust the rates of wages to be paid during the coming year in the Edgar Thomson Steel Works. This council is composed of representatives of the parties immediately affected. The present indications are that the deliberations of this council will result in an aggreement to restore the wages of 1884. It should need no argument to convince both employers and workmen that this is altogether the most sensible and reasonable way of reaching an adjustment of such differences of opinion as may exist between them; not only on the question of wages, but on all other subjects of mutual interest. The most zealous partisan of the trade union or the Amalgamated Association should not need to be told that it would be vastly stronger and more powerful than it is if in every mill and shop represented in its membership there was a council to urge its views in reasonable and friendly conference with employers. The impression that a shop council is inimical to the principle of trade unionism is a mistake, or worse, on the part of those who have urged objections to this most effective safeguard against the causes which lead to labor troubles. The worst feature of the present system is the habit it engenders of running to the union with every grievance, great or small, real or imaginary, and asking that its ponderous and dangerous machinery be set in motion. A very large proportion of the strikes which occur are caused by the unnecessary and ill-timed interference of the unions in matters which could have been easily and pleasantly adjusted by friendly conference had the habit of conferring been established We do not know the details of the arbitration system which has been established in the Edgar Thomson Works, but it is certainly a step in the right direction, and one which we hope will lead to important and beneficial results in the Pittsburgh district. The leading spirits of the Amalgamated Association are likely to oppose such a progress for reasons not difficult to understand, but the interest of the industrious working men who support the professional agitators, are not likely to be promoted or censured by measures entirely acceptable to the latter.

From what is currently reported of the use of liquid fuel on the Pacific Coast the results there do not seem to have proved highly satisfactory. A San Francisco paper, for example, just published a paragraph to the effect that the ferry-boats plying between that city and Oakland, which had been fitted up for months' experiments, gone back to coal.

The economy, so far as the fuel itself is concerned, is claimed to be decidedly in favor of the oil, but a rapid deterioration of the iron of both furnaces and hollers are the iron of both furnaces and boilers was The cost of production of the Calumet and noticed, entailing a heavy and constant ex pense for repairs and renewals. As a possible explanation of the difficulty we find that attention is directed to the intense heat of combustion of the petroleum, and to the 247 10/. Export of Pyrites from Spain in fact also that sulphur may have been present to some small extent in the oil which was used in the Oakland boats. As we have already taken occasion to point out the influence of this element as a corroding Brass and Copper in the United States, inent in boilers, we need not refer again a length to its important bearing on the life of the country, showed at the time that their flues and other exposed parts. Should it be present in the oil there can be no doubt that it would in a measure account for the damage noted. We are inclined to think, however, that neither sulphur nor high temperature alone is responsible in this case. All attempts at burning oil or gas for steam raising have been fraught with difficulties in securing a proper supply of air, and it is in this particular respect, no doubt, that the arrangements adopted on board the Oakland steamers proved defective. It is probable that with the burners employed the air introduced under the boilers was much in excess of that required for perfect combustion, and the result was an oxidizing flame, under the action of which the sheets and furnace walls rapidly wasted away. Experiences of this kind where gas fuel is used are not uncommon, though it is not always that the true source of the difficulties is recognized. The fact that the Russian practice of burning petroleum under boilers has not developed trouble of a similar character is readily explained by the circumstance that Russian engineers are satisfied with imperfect combustion. The burners used by them furnish less than the theoretically necessary quantity of oxygen, but what they gain in freedom from rapidly corroded boiler-plates is coupled with the unavoidable presence of large and trouble- 961,201 in 1885. May suffering from the some accumulations of soot.

Telegraphic dispatches from Milwaukee that the Aurora Mine in the Gogebic district has been sold for \$600,000, Captain Moore being the principal purchaser.

Annual Review of the Metal Market for 1886.

COPPER.

The year opened at 111/2 ¢ @ 115/4 Lake Superior, with a quiet but firm market during January, closing at the same figure, Baltimore bringing 103/8¢ @ 101/2¢. preliminary estimate placed the production of Ingot Copper on Lake Superior for 1885 at 71,412,000 fb. Export of Ingot Copper from the United States during the first II months of 1885, 34,527,975 lb, against 24,224,246 in 1884. Chilean export in 1885, 40,842 tons Fine, against 46,113 in 1884, 43,623 in 1883, 46,219 in 1882 and 42,-337 in 1881. Import of American Copper into Liverp ol and Swansea in 1885, 24,037 tons Fine, against 17,309 in 1884, 9410 in 1883 and 745 in 1882. Deliveries in England and France, 101,939 tons, against 107, 148 and 94,334. Visible supply in England and France December 31, 1885, 57,070 tons. against 47,843, 48,527, 47,053 and 50,598 in 1884-81 respectively. Prices of Chili Bars, £41, against £47. 5/, £58, £65 and £71. Spanish export of Pyrites first 10 months of 1885, 689, 143 tons, against 508, 967 in 1884 and 481,597 in 1883; of Ingots, 22,881, against 15,026 and 19,446. During the first fortnight of the month the import of Copper into Liverpool and Swansea from this country was 641 tons, against 1363 in all 1885. According to Messrs. James Lewis & Sons', Liverpool, annual review it was in 1885 24.037 tons, against 17, 300 in 1884; 9410 in 1883, and 745 in 1882. Chili Bars opened in London at 40£. 15/, and closed the month at £40. Best Selected meanwhile gave way from £45. 10/ at the begining of the month to £44 at its close. In February Lake Superior opened dull and weak at 113/4 @ 111/2¢, but closing at the same figure. It was reported from Montana that the famous dump of the Anaconda Mine had disappeared, and that that great concern was running its concentrating works on Ore going as low as 8 %, which would point to a heavy falling off in the supply from that section, counterbalanced to some extent, it is true, by the increase in the output of some other concerns. Chili Bars opened in London at £40, closing the month at £41; Best Selected recovered to £45. In March a slightly better feeling began to prevail, Lake Copper meanwhile remaining steady at 111/4. Official returns of Copper production in the United States showed the following

												pı	Total oduction.	Lake Superior.	Per cent.
1870				٠			,		 				14,112	12,311	87.2
1875				٠									20,160	18,020	89.8
1879.													25,760	21,424	88.9
1880													30,240	24.868	88.2
1861													85,840	27.286	76.1
1882													45,828	28, 491	62.2
1883.		1									•		57,790	29,851	51.7
1884	•	•	۰	۰				, ,	 	۰		*	72,478	84,677	47.8
1885				0	0	0 1			 		۰		82,988	36,074	48.5

Produ	ct		H	1	PL.	e	1	U	ner	A	ake	Suj	perior	Mines.
									18	82.	18	883.	1884.	1885.
Calum	et	a	nd	1)	Te	e	la	١.	.16,6	026	16,	,568	19,950	28,624
Quincy	r								. 2,	888	8.	006	2,840	2,924
Oscrol	a .								. 2,	088	2.	128	2,194	978
Frankl											1.	745	1.874	2,004
Huron										182	-	360	964	1.126
Atlanti	le								. 1.5	316	1.	341	1,582	1,791
Centra										177		634	718	1.079
Alloue	E						è		. 1	342		876	966	1,085
					-									

Cost of Production.

Hecla being estimated at about 6¢ % b. Quite a recovery took place in the London market, Chili Bars advancing during the month to £42.10/, and Best Selected to 1885, 726,424 tons, against 558,146 in 1884. and 521,060 in 1883; of Precipitate and Reg ulus 24,962 tons, against 16,671 and 21,192. Special returns from 32 manufacturers of consumption in 1885 was 50,011,471 lb, against 43,151,900 lb consumed by the same companies in 1884, thus indicating a rate of increase of 16 %. The visible supply of Copper in England and France on February 28, 1886, was 58,621 tons, against 54,569 in 1885, and 47,305 in 1884. Import of American Copper into Liverpool and Swansea during the first two months had been 2087 tons, against 3328 in 1885. Chili Bars closed in London at £41.17/6, and Best

Selected at £47. April was an excessively dall month, gen eral trade being unfavorably influenced by the strikes and the weather, moreover, inclement. Negotiations were set on foot to renew contracts between manufacturers and the Lake Companies, without leading to a sale Lake Copper, meanwhile, gave way to 11 1/2 ¢, and minor brands to 10¢ @ 101/2¢, Chili Bars declining in London to £41. 7/, and Best Selected to £46. During the first quarter the import of American Copper into Liverpool and South Wales had been 3421 tons, against 4011 tons in 1885, and the January export of Ingot Copper from Spain, 1324 tons, against 981, whereas of Pyrites there were shipped 45,084 tons, against 69,-681 Export of Ingot Copper from the United States during the first eight months of fiscal year, 19,975,928 lb, against 31,same influences of general depression and paralysis opened inactive at nominally 11 1/4 Lake, when, during the latter part of

10¢ delivery till August, which had the 1884 and at 93,000,000 lb for 1885, was wound up the month in London at £39. 17/6, and Best Selected at £44. The world's copper production in 1885, in tons of 2240 was shown to have been 221,715 tons against 217,483 in 1884; in 1879 it had not exceeded 151,156 tons, American production having risen from 23,350 tons in 1879, to 74,050 in 1885; Spanish from 32,-97 to 45.949. while Chilean had decreased from 49,318 to 38,500. Minor brands closed in the New York mark t at 91/2¢ @ 93/4, nominally.

Rio Tinto Ingot Copper Production. Tons. | Year. . 946 | 1881 . . . 2,495 | 1882 . . Production of Pyrites at Rio Tinto. Of which shipped tons 1,099,978 313,191 1,369,918 312,028 1,351,426 406,772

On May I the visible supply of Copper in

England and France was found to be 61,069 tons, against 55,384 the previous year. The owners of the Mansfeld mine, in Germany, were making an effort to get a bill passed by the German Parliament levying a duty on Copper, but from the very commencement a measure of the kind failed to receive any support. Although activity in the New York Copper market did not increase much in June, there was a slightly firmer feeling and a better outside consumptive demand, leading to an appreciation in Lake Copper to 10.20¢ at the close of the month. It was, moreover, stated that since April the Calumet and Hecla Company had sold altogether 25,000,000 fb, the bulk, as above indicated, to manufacturers, and the balance in Europe at 101/4. Having in this manner disposed of all the company would be able to turn out till August I, there would thenceforward remain to be sold to the close of the year only the current monthly production of the company of 4,000,000 lb. Minor brands meanwhile continued selling at 81/2 # @ 91/2 #. The visible supply in England and France stood 60,485 tons on June 1, against 55,178 in 1885. Liverpool and South Wales imported during the first five months 6217 tons of American Copper, against 10,762 tons during the corresponding period of the previous year. Export of Ingot Copper from the United States during the first 10 months of fiscal year, 22,251,633 lb. against 38,476,252 the previous one; of Ore, &c., 23,657 tons, against 33,669. Spanish export of Pyrites first two months, 172,-696 tons, against 206,269 in 1885; of Ingot Copper, 6411 tons, against 5707. In London 1600 tons of Anaconda Matte sold in June at 8/3 P unit. In spite of the fact that the output from Montana and Arizona was at that time fully 4,000,000 fb below the average monthly product of 1885, our market relapsed into a condition of extreme flatness during July, receding to 91/4 @ 10# Lake, and nominally 9¢ @ 91/2¢ outside brands. Chili Bars had closed the month of June at £39. 10/, and on July 31 gave way to £38. 17/6. Best Selected had meanwhile declined from £44 to £43. Up to the middle of June American arrivals in England and France had been 7909 tons, against 17,581 in 1885, a decrease of 9672 tons.

On July I the visible supply of Copper in England and France was shown to be 61,550 tons Fine, against 55.337 in 1885. Export of Pyrites from Spain first four months 223,555 tons, against 278,152 in 1885; of Ingot Copper 8125, against 9402. Toward the close of July a rather better feeling began to prevail in the New York market, and a more active demand for Lake futures was noticeable. August was ushered in with increased trength; after it had transpired that the United States first nine months, 12,983,420 it will lead to a discussion of the whole able. August was ushered in with increased Calumet and Hecla contract with manufacturers had been extended for 60 days at Baltimore were selling in our market at the 10¢, representing a sale of about 8,000,000 Lake Copper both on the spot and for forward delivery took quite an upward turn irrespective of the London tendency, carrying the price of Spot Lake to 103/4¢ at the close of the month, Chili Bars being at the same time worth in London £39. 7/6, and Best Selected steady at £43. During the first seven months the import of American Copper into Liverpool and Swansea had been 9236 tons, against 14,533 in 1885, and on August I the visible supply in England and France was 62,247 tons, against 56,423 in 1885. Export of Ingot Copper from the United States during the fiscal year ended June 30, 24,239,258 lb, against 44,672,493 the previous year. Imports into England first six months 61,407 tons fine, against 66,859 in 1885; export 31,941, against 32,-059. The Spanish export of Pyrites the first Export of Pyrites from Spain during the five months had been 300,562 tons, against 342,265 the previous year, and of Ingot Copper 10,660, against 11,688. During the latter part of August, Copper production in the United States in 1886 was estimated to be as under, compared with the actual out-

put of the previous year : in 1885.
Pounds.
Lake Superior 72, 148, 172
Arizona 22, 706, 366
Montana 67, 758, 564
Miscellaneous 8, 822, 364
Imported foreign pyrites 5,056, 841 Total.... 170,988,607 147,000,000 [

effect of lowering the price of Lake Copper | believed at the time to exceed in 1886 105, generally to that figure, and outside brands | 000,000 lb. provided the actual rate were to proportionately less. In sympathy with kept up. While the export of Domestic this unexpected breakdown, Chili Bars Copper had been 82,000,000 fb in 1885 it was thought at the time that it would not exceed 42,000,000 th during the current year. Coming so soon after the restriction of output in Arizona, the news received during the last week of August of the closing of the Anaconda Mine concentrating works contributed to strengthen the New York market. The Anaconda Mine when producing to full capacity making over 3,000,000 fb of Copper per month every week's idleness consequently meant a re duction of supply of 750,000 fb. The London market was evidently also favorably impressed by the news from this side, and under the stimulus of the generally improved position of the Metal and a brisker demand for it in the New York market Brass manufacturers contracted during the last week of September with all the Lake Superior companies but one for 12,000,000 to be delivered in October and November, at 11¢. On September 1 Chili Bars were worth in London £39. 5/, on October they had recovered to £40. 17/6, and Best Selected to £44. In New York September had opened with spot Lake at 103/8 and closed at 111/8 . Import of Copper into England during the first seven months, 71,102 tons Fine, against 77,353 the previous year, and the export 36,922, against 37,725 Shipments of Ingot Copper from the United States during the first seven months 9,289, 509 lb, against 23,332,586 in 1885. Visible supply in England and France on Septem ber 1, 66,111 tons, against 57,489. Export of Pyrites from Spain during the first six months 358,386 tons, against 416,874 the previous year; of Ingot Copper 13,396, against 13,613.

In October our market at first continued active and buoyant, but was later on slightly unsettled by the persistent attacks on Chili Bars in London by speculators for a fall there upon the rumors set afloat that the Anaconda Mine was about resuming operations. Opening at £40. 17/6 Chili Bars closed in London at £40. 10/, and Best Selected, which at one time had recovered to £46, at £45. 15/ October opened with Lake Copper on the spot, 111/4 @ 111/8¢, and closed at 111/6¢; Baltimore winding up at 101/8 . Arrivals of American Copper during the first nine months in England and France had been 15,268 tons Fine, against 26,065 during the same period of the previous year, a decrease of 10,797 tons. The visible supply in England and France on October 1 was found to be 64,826 tons, against 58,065 in 1885. Export of Pyrites from Spain first seven months, 416,931 tons, against 487,293 in 1885; of Ingots, 15,718 tons, against 16,415. Export of Ingot Copper from the United States during the first eight months, 11,033,-829 fb, against 26,107,022 in 1885. Rio Tinto Company's report stated that in all 1886 its delivery of Pyrites would be 350,000 tons, or the same as in 1885, and that the production of Copper was fully maintained at the rate of that year. Both the New York and London markets were rather tame during November, the attacks on Chili Bars continued in the latter market, while here the demand for both spot and futures, at first well maintained gradually slackened. Lake Copper on the spot opened at 11 1/2 and closed at 11 7/6 ; Chili Bars stood £40. 12/6 at the commencement of the month; at its close they were £39. 15/ Opening at £46. Best Selected receded to £45. On November 1 the visible supply of Copper in England and France was 62,827 1b, against 30,288,527 in 1885. Oxford and close of the month at 11¢ @ 11 % é. During December our market gradually fell into a listless sort of condition. At the same time the Anaconda mine resumed work in full. In spite of the tame market here spot Lake Copper was firmly sustained at 11 % @ 0 126. while Oxford and Baltimore were later on obtainable at 103/¢, and Oxford Refined bringing 11 1/2 High Electrolytic was freight rates from the lake kept that sort of Copper firm. Chili Bars stood on December 1 £39. 10/, but gradually receded to £38. 17/6, Best Selected meanwhile dropping to £43. Import of American Copper into Liverpool and South Wales during the first 11 months, 12,930 tons, against 22,751 in 1885 and 15,851 in 1884. Export of American Ingot Copper during the first 10 months, 14,966,107 fb, against 32,900,869 in 1885 first nine months, 515,094 tons, against 630,-460 the previous year; of Ingot Copper, 20,607 tons, against 20,860. The visible supply in England and France amounted on December 1 to 62,780 tons Fine, against 56,284 in 1885 and 45,118 in 1884/

Gen. Harry Bingham, of Philadelphia, has introduced a bill in the House to refer to the Court of Claims, without prejudice on account of the statute of limitation, the claims arising from payments made between 1879 and 1885 by persons importing steel blooms who were overcharged. The claims are all based on overcharges of customs duties and get their standing in court upon the month, it leaked out that the Calumet and Hecla Company had sold to manufact.

The consumption of Copper in the United by Collector Robertson, of the decision for the defendants in the test case brought by Collector Robertson, of the decision for the decisi urers some 12,000,000 fb of Copper at States, estimated at 80,000,000 fb for New York, against Richard F. Downing.

WASHINGTON NEWS.

(From Our Regular Correspondent.) Washington, D. C., December 28, 1886.

At a conference of protection Democrats prior to the adjournment of Congress for the Christmas holidays a committee was appointed to make a canvass of the temper of the majority and to formulate a bill duce the revenue in conformity with the results of their inquiries. A consultation with the leaders representing the diverse views of the parties led to a decision that it would be feasible to prepare a bill which would receive very general support. Since the departure of Congress the members of the committee in the city have had several neetings in a preliminary way. Mr. Ran-iall and Mr. McAdoo are new both out of the city and will not return until Thursday or Friday, which has caused a temporary suspension of their efforts to prepare a compromise bill.

FEATURES OF THE PROPOSED BILL.

The bill as it has been outlined pro vides for a repeal of the tobacco tax and duties on spirits distilled from fruits. It was originally intended to include r peal of special licenses and to stop ther but the plan now is to extend the pr visions of the bill so as to include a re duction of certain duties and addition of certain articles to the free-list. The reduction proposed is on steel rails and sugar, and the addition to the free list is free raw materials. To what extent, however, will be determined later. Lumber is almost certain to go on. The Morrison men are willing to consider a proposition looking to a bill for reduction of the surplus revenues provided it includes raw materials, they making a particular point of getting iron ore on the free-list. The New York, New Jersey and Pennsylvania Democrats are divided on this point. A preponderance of them are not particularly emphatic against this feature of a compromise bill. The question of making bituminous coal free was brought up, but was very summarily decided in the negative. It is doubtful whether a bill could pass the House with free iron ore in

AN ATTEMPT TO CONSIDER WITHOUT REFER RENCE TO COMMITTEE.

There is also a plan on hand to circumvent chairman Morrison's hostility by trying to force consideration of the bill without referring it to the Committee on Ways and Means. Republicans like Reed, of Maine, are opposed to supporting any such programme, Republicans like Reed, of Maine, are on the ground of importance of the subject.
If the Republicans could force reference the bill would doubtless never be heard of again unless considerably altered. Mr. Morrison has now hauled in his horns so far as to agree to a bill with a reduction of \$4 a ton duty on Iron and free raw materials. It. is not likely that the Randall men will agree to such a measure, although they talk of a willingness to compromise. The defeat of Colonel Morrison does not appear to worry the gentleman. He says he is glad the matter is disposed of, although not in accordance with his views. He is also inclined to give a measure a show as far as reporting it is concerned. Two months more will find Colonel Morrison out of Congress. The tariff is then likely to have a new deal to be shaped by the nature of the organization of the House. If 20 or 30 Randall Democrats should refuse to attend a caucus intended to bind them to a repetition of the organization of two years ago, they would hold the balance of power against the election of Carlisle or a Republican.

TO BE REPORTED SOON AFTER THE HOLIDAYS.

Mr. Randall says that the proposed bill, whatever shape it may take, will be re-ported soon after the holidays, and if frustrated by partisan or technical opposition, responsibility must rest with the parties offending. If no action should be taken to reduce the revenue the President may call an extra session, as he regards this large tons, against 57,247 in 1885. Export of Pyrites from Spain during the first eight months, 476,163 tons, against 574,743 in 1885; of Ingot Copper, 17,781, against tic as to the prospects of a bill passing the

RECENT DECISIONS.

Certain spoons, forks, nut picks, butter knives, cake, pie and fish servers, crumb scrapers, ladles, &c., made of German silver, and finished ready for plating, are held to be dutiable at the rate of 45 per cent. ad valorem, under the provision for "manufactures, articles or wares, " " accomposed wholly or in part of " " a or any other metal," such articles not being comprised within the commercial meaning of the term "cutlery," and not being other-wise enumerated in the tariff act.

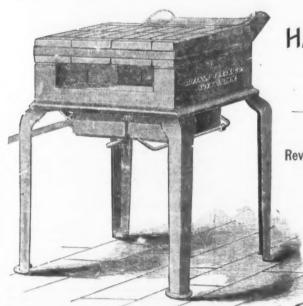
No allowance can be made for damage on steel and steel wire claimed to have been injured by having been eaten (corroded) by chemical substances, inasmuch as the cor-roded surface of any metal, no matter from what cause, is, in fact, rust, and as damage by rust is expressly prohibited upon any description of iron or steel, &c.

Small metal pencils in the form of horses' legs, &c., with rings on the tops, so that they may be attached to watch chains as charms, are held to be dutiable at the rate of 45 per cent. ad valorem for "manufactures, articles or wares not specially enumerated or provided for " " " commerated or provided for, * * com-

posed wholly or in part of Decorated match safeholders manufact-ured from imported tin plates will be allowed a drawback on exportation equal in amount to the duty paid on the quantity of tin plate contained in their manufacture equal to the net weight of the exported articles, less the legal retention of 10 per cent.

A company has been organized at Beaufort, S. C., to construct water works to supply artesian well water for fire, manufacturing and domestic purposes. The origina-tors of the plan are C. Townsend, W. T. Seward, Geo. Holmes and several others,

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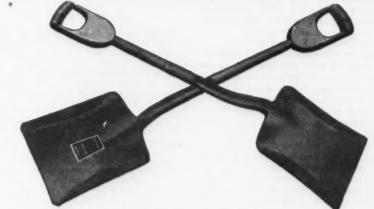
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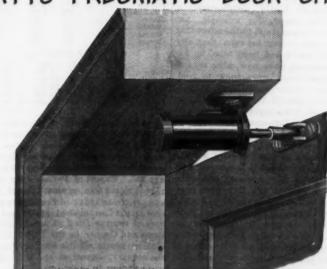
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Gear Cutter, Putnam. Good order. Gear Cutter. L. W. Pond. LODGE, DAVIS & CO.,

To Iron and Steel Manufacturers.

A man of ciucation and of unquestionable character and ability, with 25 years' experience in the construction and management of iron or steel works, desires to connect himelf with a newly projected or established works, as Engineer or General sanager. The advertiser has had thorough experience as an action and steel manufacture, and has a record as an economical manager. He has devoted the last few years to visiting the principal works in Europe and the United States and to the study of the conomics and mechanical problems connected therewith. Inquiries addressed to "A." Fox 90, and mechanical problems connected therewith. In quiries addressed to "A.," Fox 90, Office of The Iron Age, 66 and 68 Duane street, N.Y.

Wanted,

a good, active man to take Foreman's position in a small factory making Small Tools and Hardware Specialties. Address, stating age, experience and wages expected, "ACTIVE,"

Office of The Iron Age, 66 and 68 Duane st., N.Y. A GENT'LEMAN with a very wide experience and extensive acquaintance in the Hardware and Agricultural Implement business, wishes the Agency of good manufacturers. Address "LOW" flow of The Iron Age 66 and 68 Duane st., N.Y.

NOREMAN MOULDER.—Situation by a thoroughly competent and reliable man with large experience in an iron foundry; competent to take charge of all kinds of work and make it profitable. Best references. Address "H. G.," Office of The Iron Age, 66 and 68 Duane st. N. Y.

Y OUNG MAN, 23 years of age, active and edu-rated, wants change at once. Over the ee years' hardware experience. Very rai id and cor-rect we ker. Excelent references from present and fromer employers. Would like position as correspondent, salary \$60 "H. A. F." Omce of The Iron Age, 66 and 68 Duane Street, N.Y.

Rolling Mill Manager Wanted for a Bar Milt in the vicinity of Philadelphia, containing Bar, Guide and Muck Trains. Permanent situation for a competent man. Address, giving reference and past experience, "BAR MANAGER,"
Office of The Iron Age, 66 and 68 Duane St., N. Y.

THE ADVERTISER is open to engage ment as Rolling Mill Superintendent or Manager. Many years' commercial and practical experience in the manufactured iron tradeof England, with entire management of large concerns. Highest references. Address "FERR!".

Office of The Iron Age, 66 and 68 Duane st., N. Y.

WANTED, by a thoroughly practical Rolling Mill Manager, situation, whole or part management taken. 30 years' experience in Boiler Sheet, Bar, Channels, Tees, Angles, Hoop and Mill. Also Pix Irons and the mining for different results. Reference as to ability, sobriety, &c. Address "IRON & STEEL MANAGER," office of The Iron Age, 35 Clark st., Chicago, Ill.

WANTED.

assistant Draughtsman. Address "C. O. I. P." Office of The Iron Age, 66 and 68 Duane St., N. Y.

Special Notices.

Extensive Sale of Manufacturing MACHINERY, SECOND-HAND AND NEW, ON HAND Property

BY THE TRUSTEES OF THE

Bridgewater Iron Company. The trustees of the Bridgewater Iron Company offer for sale the large and valuable Manufacturing Plants, Mills, Machinery, Water Powers, &c., of said to the country of the Bridgewater and at Ware-schuster country of Plymouth, and state of Masschusetts.

offer for sale the large and valuance manufactured Plants, Mills, Machinery, Water Powers, &c., of said corporation, situate at Bridgewater and at Warebam, in the county of Plymouth, and State of Massachusetts.

The Bridgewater Plant has an area of about 40 acres abutting on the Old Colony Railroad, with convenient branch tracks, and comprises large first, class Rolling Mills, Iron and Brass Foundries, Machine Shops, Forge, with capacity for very heavy work, Nail Mills (including Horse Shoe Nails), exten at Colony Railroad, with competence of the Water Works, and Brass and Copper and Yellow Retail Works, and Brass are houses, Coal House, Carponter, Elacksmith, Pattern and Cooper Shops, Saw Mill, &c., &c., together constituting a manufacturing establishment of the first rank, both as regards the cost, extent and variety of its works and the quality and reputation of its goods. All the works are furnished with ample steam or water power and thoroughly equipped with the best machinery, tools, patterns, apparatus and appliances of every description, and are now or recently in full operation and in good running order. Also Office, Store, Dwelling and Tenement Houses, Stables and considerable tracts of farming and other lands in the vicinity of the mills. The above works and property may be sold as a whole or divided into parcels to suit buyers.

The Warehaw Plant consists of the extensive works and property in the property in a work of the extensive works and property in the property in the large (Nail and Capacine). The warehaw Plant consists of the extensive works and property may be sold as a whole or divided into parcels to suit buyers.

The Warehaw Plant consists of the extensive works and property in the longer of the mills. The above works and property in the sold of the extensive works and property in the sold of the extensive works and property in the sold of the extensive works and property in the sold of the extensive works and one sold of the parker Mills Corporation, including the earge Nail Railroad, a

stroke, of the best manufacture and in first-rate condition.

The trustees also offer for sale a large and very valuable Wharf Property at Fox's Point, Providence, R. I., lying between India street and Providence River, containing 35,368 square feet, and having a water frontage of over 300 feet, with 20 to 25 feet depth of water, and stone-warehouse with slated roof thereon.

All of the foregoing property must be sold at the best prices obtainable, regardless of its immense cost, in order to close the affairs of the corporation. Inquiries and proposals may be addressed to LUKE P WILLARD, 82 Water street, Boston, where plans, schedules, &c., may be seen, or to either of the other trustees.

JOHN E. SANFORD. Taunton, or 65 Bowdoin st., Boston, LUKE P. WILLARD, 82 Water st. Boston, ARTHUR E. DENISON, Rocm 51, Equitable Building, Boston,

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in the world.

Contents : Part I. History of Aluminium. II. Occurence of Aluminium in Nature. III. Physical Properties of Aluminium. IV. Chemical Properties of Aluminium. IV. Chemical Properties of Aluminium. V. Metallurgy of Aluminium. VI. The manufacture of Sodium. VII. Manufacture of Alumina. VIII. Manufacture of Double Chloride of Aluminium and Sodium. IX. Manufacture of Aluminium at Salindres (Gard). X. Reduction of Aluminium at Salindres (Gard). X. Reduction of Aluminium. Alpendix. Addenda. Index. A circular showing the full table of concents of his

A circular showing the full table of contents of this volume will be sent, free of postage, so any one in a yeart of the world who will fur nish us with his address. HENRY CAREY BAIRD & CO.,

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The Wholesale Hardware Business

of CLARK, WIDDIFIELD & CO., situated in Cincinnati, Ohio, having been established over twenty five years and can show a profitable business for most of the time, is now offered for sale as a whole, or if necessary one of the interests can be retained. Any parties acquainted with Hardware and desirous of obtaining a good business requiring not a very large amount of capital will do well to give to is notice prompt attention. Unless sold as a whole by January 1st we shall then close out the stock in parts, and would call attention to any parties who have in view opening a retail hardware store to watch for our advertisement in the first or second January issue of this paper. Correspondence solicited. this paper. Correspondence solicited.
CLARK, WIDDIFIELD & CO.

DIAMOND DRILL FOR SALE. American Diamond, R. B. Co.'s make, with 700 feet of drill rods and all necessary connections, in good working order. Takes 1%-inch core. Address L. C. BIERWIRTH, becretary.

Dover, N. J.

Wanted,

to purchase an outfit for a Tack and Small Nail Factory. State amount and kind of machines for sale, length of time in use, with lowest prices and full particulars. Address
"NAIL FACTORY."
office of The Iron Age, 66 and 68 Duane st., N. Y.

TRAVELLER WANTED.

Wanted, an energetic man fully acquainted with the Metal trade. Address "A. T.,"

Office of The Iron Age, 66 and 68 Duane street, N.Y.

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25 in. x 6 and 8 ft. Planer. Powell. New.
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48 in. x 10 ft. Bond. Nearly new.
42 in. x 5 ft. Engine Lathe.
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14 in. x 5½ ft. "Harris. Good.
15 in. x 6 ft. "Word & Light. Good.
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14, 16, 18, 22, 24, 28 in. Blaisdell Engine Lathes.
20 in. x 6 ft. "Punam. Good.
19 in. x 10, 12 and 14 ft. Engine Lathes. Pond. Nearly new.
8 ft. and 10 ft. Engine Lathes. Harris. Belden.

20 in. x 6 ft. Putnam.
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14 in., 20 in. and 33 in. Turret Head, Chucking or Screw Machines. Bridgeport. New.
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16 in. Shaper, Hewes & Phillips.
15 in. and 24 in. Shapers. Wolcott. New. 10, 15, 20 in. Shapers. G. & Eberhardt.
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Screw Machine, No. 4. Jones & Lamson.
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Nos. 34 and 5 Stiles Presses.
36 in. Bliss Squaring Shear. Power. Extra Heavy. A 40 and 60 lb. Braciey Hammers.
One Bradley Forges, No. 2. A. 15.
16 in. Vertical Boring and Turning Mill. A 1.
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2 Heads. New 72 lust what is required. We have other machines not enumerated above.

E. P. BULLARD.

14 Dey Street, N. Y.

FOR SALE. ROOT BLOWERS, Nos. 1, 2 and 5. STURTEVANT dc., Nos. 3, 4, 5, 6, 7 and 8. STURTEVANT EXHAUSTERS. Nos. 3, 4, 6, 9 and 39 Wing's Ventilating Fan, 36-in. Blake Crusher, 9 x 15

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FOR SALE, LOW.

one Horlz, Greene Engine, 18 x 48.

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me Engine Latte, 35 in. swing, 12 ft. bed.

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me Pratt & Whitney Boit Cutter, ¼ ft. to 1¼ in.

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A hardware stock of \$15 000 in the best business city in Michigan. Business established twenty-five years. Address "HARDWARE STOCK," Office of The Iron Age, 56 and 68 Duane St., New York

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Large bodies of YELLOW FINE and HARD WOOD for sale. For information apply to

HILLEARY & KEITH,

Birmingham, Alabama FOR SALE CHEAP.

One (1) No. 2 Merriman Bolt Cutter, to cut % to 134 in., with Taps. Dies, Countershaft, Pulleys, Oil Pots, &c. Complete, perfect, new, and has never been used; made by H. B. Brown & Co.

BEECHER & PECK,

New Haven, Conn. FOR SALE.

Foundry, Machine, Blacksmith and Wood-working Establishment. Brick building 103 x 200, iron roof. Switch to shop, boats land at door, splendid place for manufacturing. All kinds of iron and wood working machinery running on jobwork now. \$7500;\$1500 cash; balance long time. Write for particulars. "W." Box 26, Jefferson City, Mo

FOR SALE. One large Rail Shears, run by belt. L. P. Morris Co.'s make. One Doubie Upright Shears. Hement's make. Three 12-inch Return Flue Boilers. All in good order. Will be sold cheap. Delivered on cars, Philadelphia. For further particulars, apply to JOS. C. POULTERER & CO.,

216 So. 4th st., Philadelphia.

For Sale. Large quantity Iron-Working Tools, Lathes, Planers, Drills, &c.; also boiler makers' outfit, consisting of Power Punch, shears, Rolls, Alien Pneumatic Riveter and Tools; also large assortment of Patterns of steam engines and wood and iron-working machinery. Apply WARREN SPRINGER, 207 South Canal street, Chicago, Ill.

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WANTED, Steel Wire Rope. Sheet and Light Iron Scrao. Also all kinds of Iron and Steel Scrap. THOMPSON C. GILL & CO., Philadelphia, Pa.

WANTED,

Iron and Steel Scrap.

We buy all kinds of Iron and Steel Scrap Write to us when you have any to sell. SITES, WHEELER & CO., 222 and 224 So. Third Street, Philadelphia, Pa.

Manager Wanted

for an Anthracite Furnace; one sufficiently familiar with chemistry to analyze his own stock and products preferred. Aduress, stating age, and products protestes.
experience and references,
"B."

Office of The Iron Age, 66 and 68 Duane St., N. Y.

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to buy Malleable Scrap in large or small quantities. Address, with price, &c.

THOMPSON C. GILL & CO.,

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Two Engine Lathes, 87 in. swing, 20 ft. 6 in. bed, Geared in Face Plate, Screw Feed, Compound Rest.
One Engine Lathe, 15 in. x 6 ft.
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One Iron Planer, planes 24 ft. long, 62 in. x 62 in.
Excellent condition.
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One Four-Spindle Nut Tapper.
One 400-lb. Merrill Drop Hammer, as good as new.

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Seven Garvin Lincoln Pattern Milling Machines.
One No. 3 Screw Machine, Jones & Lauson, same as new.
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One 12-inch Shaping Machine.
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One Back-Geared Punching Machine. heavy.
One Putnam Machine Co.'s Planer, 36 x 36 x 12, very heavy.

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One Hydraulic Wheel Press.
One 15 ioch Prentice Upright Drill,
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Four Iron Stand Foot Presses.
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Send for lists New and Second-hand Tools, too long for publication.
Sole Agents EDISON SHAFTING MEG. CO.

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One 26 X 42 in. Hor Engine, Goodwin Cut-off.
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One 6 H.-P. Baxier Engine.
One 10 H.-P. Ligerwood Hoisting Engine.
One 28-in. swing, 16 tt, bed. Engine Lathe.
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One 29-in. 10 ft, 10 million of the 10

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HENRY I. SNELL, 135 North 3d Street, Philadelphia

NEW TOOLS FOR SALE.

We have following tools completed or nearly so:

1 26 X 12 ft. Lathe. 1 26 x 25 ft. "

1 42 X 18 ft. 41

1 36 x 36 x 9 ft. Planer. 2 36 x 36 x any length of bed Planers,

1 60 'nch Pulley Turning Lathe, two tools.

THE

NEWARK MACHINE TOOL WORKS, EAST NEWARK, N. J.

For Sale.

Foundry, 100 X 40 ft, and Machine Shop 60 X 20 ft., both with water privilege; also Japan and Packing House 62 x 22, Stove Storehouse 50 x 14 and Storehouse and Box Shop 30 x 20. All in good repair and running order; five minutes from steamboat and ten minutes from two railroad stations. Address

WILLIAM KEIGHLEY'S EST.,

Middle Haddam, Conn.

FOR SALE.

A nearly new four-ton Steam Hammer, in first ass condition. Made by the Morgan & Williams agineering Co., of Alliance, Ohio. Very best class condition. Engineering Co., Engineering Address
manufacture. Address
WORCESTER STEEL WORKS,
Worcester, Mass.

For Sale.

A complete set of Horizontal Blowing Machinery suitable for blowing a medium-sized Blast-Furnace Engine, 22 in. x 48 ln., strongly geared. 3½ to 1; blast cytinders, 60 in. x 66 ln. Built by R. S. New bold & Son. All in first-class order. Can be examined on foundations. Apply to SCHALL, STEACY & DENNEY, York, Pa.

LARGE SIZE, 500 Pages, 6 x 91/6 in. each, \$8.00. POCKET SIZE, 250 Pages, 4 x 7 in., each, \$4.00. Send for Circulars.

B. LAMBERSON, PORTLAND, OREGON.

WANTED.

a practical Foreman, with thorough experience in Bench Moulding, to take charge of a light Grey Iron and Brass Foundry.

"MANUFACTURER,"

Office of The Iron Age, 220 South 4th St., Philadelphia WE buy all kinds of Iron and Steel Scrap, Burnt Iron, Old Rails and Cast Borings (in carloads only). Write us, naming quantity and price. ROBINSON & ORR.

115 Water St., Pittsburgh, Pa. (ESTABLISHED 1859.)

WANTED, a Rolling Mill Manager; one that is competent to manage a mill that rolls iron and steel bars and sheets. Natural gas used as a fuel. Address, giving experience, former place of employment and references,

"A MILL MANAGER,"
office of The Iron Age, 66 and 68 Duane st., N. Y

NOTICE.

Large Buyers of Shafting are requested to send pecification for special prices.

MERWIN McKAIG, Cumberland, Md.

Special Notices.

TO THE STEEL MANUFACTURERS OF THE UNITED STATES OF AMERICA.

12-inch. 12-5 tons.

All these forgings must be delivered within the bllowing times from the closing of a contract, viz.:

For 6-inch guns, 28 within one year, and the retainder within 18 months.

For 8-inch guns, within two years.

For 10-inch and larger guns, within two and onealf years.

For to-inch and larger guns, within two and one half years.

Preference will be given for earlier deliveries.
Also about 4500 tons of steel armor plates, to be of the best material and manulacture, shaped accurately after patterns to fit the form of each vessel for which intended, and of such sizes as may be required, varying somewhat as follows:
20 feet by 8 feet by 12 inches thick.
17½ feet by 6 feet by 17 inches thick.
11½ feet by 4½ feet by 6 inches thick.
There will also be thinner plates.
For information concerning shapes and weights of the gun forgings and armor plates, what parts must be manufactured in sets, time of delivery of each set, the chemical, physical, and ballistic tests which the metal must sustain in each case, and for all other particulars, apply to the Chief of Bureau of Ordnance, Navy Department, Washington, D. C.
Each bid upon armor plate must specify the time within which the bidder will engage to make delivery; and preference will be given to carliest proposed deliveries.
Proposals must be in duplicate, sealed and addressed to the Secretary of the Navy Department. Washington, D. C., the envelopes endorsed "Proposals for steel gun forgings and armor."

dorsed "Proposals for steel gun forgings and armor."

They will be received at the Navy Department until 12 o'clock, m. on the 10th day of December, 1856, at which hour the opening of the bids will take place.

The right is reserved to waive defects in the form of and to reject any or all bids.

Ten per cent of the contract price will be retained from the payment of each article delivered, until the contract, as far as relates to articles of that class, shall have been completed.

Separate bids may be submitted for the gun steel and for the armor, if any manufacturer so desires; but bids covering both will receive preference, other things being equal.

Bids will be compared in two classes.

First, Gun forgings.

And the total sum for which, and the time within which, the whole of the material covered by each class will be produced and delivered, will be alone considered.

WILLIAM C. WHITNEY.

Secretary of the Name

WILLIAM C. WHITNEY retary of the Navy.

NOTICE.

UNITED STATES NAVY DEPARTMENT,
Washington, November 6, 1886.
The time fixed by the foregoing advertisement,
dated August 21, 1886, for receiving proposals
for Steel Gun-Forgings and Ara or-Plates, vis:
December 10, 1886, is extended to 12 o'dock noon,
March 15, 1887, at which hour the opening of the
bids wiit take place. March 15, 1887, at which may bids will take place.
WILLIAM C. WHITNEY,
SECRETARY OF THE NAVY.

METALLURGICAL ENGINEERING.

I am prepared to furnish

PLANS, SPECIFICATIONS and ESTIMATES

SUPERINTEND THE CONSTRUCTION OF ROLL-ING MILLS AND MACHINERY, RE-GENERATIVE GAS FURNACES, TUBE AND PIPE MILLS, ETC., ETC.

I represent the latest improvements in all the

M. V. SMITH, Metallurgical Engineer, Rooms 16, 17, and 18 Bissell Block. Pittsburgh, Pa.

EUGENE BISSELL, Auctioneer. HAYDOCK & BISSELL,

Successors to ROBERT R. HAYDOCK & Co., and E. BISSELL & Co., WHOLESALE HARDWARE AUCTIONEERS, 12 Murray St. and 15 Park Place, N. Y Sales held weekly for the trade. Consignments solic ited. We refer to the leading manufacturers and im-

TRAVELERS WANTED

to sell a new, neat, ingenious and handsomely boxed Wood-Worker's Tool as a side line, on com-mission. Fells readily at \$6.00 per dozen and will carry in your vest pocket. Send or Descriptive Circular. THE HALE MANUFACTURING CO.

REMOVAL.

Minneapolis, Minn

We have taken possession of our new offices, 216 South Fourth street, and will continue the Iron Commission Business in all its branches. JOS. C. POULTERER & CO.,

Philadelphia.

WANTED-Permanent position as Mechanical Draughtsman or Superintendent by a man educated for and long experienced in both capacities, familiar with all the latest improvements in general machinery, including portable, holsting, stationary, pumping, marine and air compressing engines and bollers, pattern and foundry work. Cost closely estimated. Correct bills of material. Salary moderate. References. Address "DRAGHTSMAN."

BYANTED-A gentleman.

S Varick street, Oswego, N. T.

WANTED.—A gentleman now representing an Eastern manufacturing company for the Western trade wishes to make similar arrangement with another factory of Hardware Specialties for same territory, where personal attention to the trade can be made advantageous to both parties. Reference from present representation and others given. Correspondence solicited. Address W. G. TALCOTT. 59 Lake st., Chicago, Ili,

Special Notices.

GREAT BARGAINS

MACHINERY.

in. Automatic Cut-Off Engine.

28 in. Slide Valve Eugine, in. Horizontal Engine. New,

n. x 15 in.

n. x 12 in. Ames Engine. Nearly new.

n. x 10 in. Portable Engine and Boiler.

n. x 10 in. Horizontal Engine.

H.-P. #axter Engine, with 15 H.-P Boiler.

H.-P. f rtable Engine and Foiler.

x 12 Double-Drum Hoisting Engine and Boiler.

t. x 16 ft. Horizontal Tubular Boiler.

t. x 12 ft.

in. x 12 ft. Locomotive Boiler.
H.-P. Upright Boiler.
in. x 12 ft. Engine Lathe. New.
in. x 12 ft. Back-Geared Drill. Solf-Feed.

1 30 in. Back-Geared Drill.
1 50 in.
2 Ames 4-Spindle Drills.
2 Pratt & Whitney 4-Spindle Drill.
2 Pratt & Whitney Bevel Gear Cutters.
1 24 in. Gould & Eberhard Gear Cutter.
1 No. 2 Gervin Milling Machine.
1 2 in. Heavy Slotting Machine.
1 2 in. Heavy Slotting Machine.
1 2 in. Heavy Slotting Machine.
1 a in. Horris & Tasker Pipe Threading Machine.
1 set Rubber Grinding Kolls.
0 Tanks, 8 ft. x 5 ft. x 5 ft. 3 in.
1 Tank, 8 ft. diam. x 8 ft. high.
1 5 ft. diam. x 8 ft. high.
1 5 ft. diam. x 5 ft. high.
1 6 ft. Vacuum Pumps.
2 Knowles Pump, 8 in. Suction, 8 in. Discharge.
2 if ft. Vacuum Pan.
2 if in. Guild & Garrison Vacuum Pump.
3 Hydraulic Press, 4 in Ram, 4 ft. Lift.
3 ROBT. J. GRAY,
3 ROBT. J. GRAY,
3 ROBT. J. GRAY,

ROBT. J. GRAY, 502 West Street, New York

Great Bargain.

For sale at private sale -The undersigned offer For sale at private sale—The undersigned offers for sale a good Steam Saw Mill, 150 x 50 ft.; boiler-house and engine, 80 horse-power; room of brick attached to mill. 25 x 50, and brick stack on the estafe; planing mill of brick, 32 x 60 ft., with all necessary machinery for the manufacture of flooring, door and sash, &c. The saw mill contains two mulay saws, one shingle machine, one cross-cut, one edger and two lath and paling saws; and oilhouse, metal roof, with a continuous delivery way from mill to pliing ground, with con venient storage shedding on lots contiguous to mill situated in the borough of Middletown Dauphin County. Pa. This building and property embrace about 46 lots of ground, and can be turned into something else, say for nail factory or rolling mill, &c., besides a saw mill, &c. Fo particulars address to L. M. COUDRIEF, French ville, Clearfield County, Pa., or to call at the premises of James Young, Esq., Middletown, Pa.

BESSEMER STEEL COMPANY, Ltd., Office, 218 S. Fourth St.,

PHILADELPHIA, December 1, 1886 PHILADELPHIA, December 1, 1886'
A demand for steel blooming mills of small size having arisen, we have decided to grant licenses for movable feed tables having driven feed rollers under the George Fritz patent, No. 133.771, dated December 10th, 1872, hereafter, with reference to the product of the mill.

Licenses will therefore be granted under the said patent for mills hereafter erected and put into use upon the payment of \$1000 down and a royalty of ten cents per ton for all metal rolled thereon in excess of 50,000 tons in any year.

These terms are extended only to mills hereafter erected by persons procuring licenses before said mills are put into use.

All infringers of this patent will be vigorously prosecuted.

JOHN M. KENNEDY, Secretary

FOR SALE,

for best of reasons, a clean stock of Light and Shelf Hardware and Sporting Goods that will invoice about \$5500. The finest store front and fitted-up room of the kind in a city which has a population of 45,000 and is one of the largest manufacturing and railroad centers in State of Pennsylvania. Is and always has been doing a paying business, and now enjoys the most lucrative trade in Builders' Hardware, Carpenters' Tools and Sporting Goods in the city. An exc-ptional opportunity for a young man. In the employ of the store is the best liked Hardware Clerk in the city, a hard worker, competent to run the business, thoroughly honest, kind in manner, in best of repute with the contractors and working for moderate salary. Address

"GOOD CAUSE.

office of The Iron Age, 66 and 68 Duane Street, N. Y A HARDWARE STOCK FOR SALE.—A rare chance in a first-class country town in Central Ohio; aclean stock; population 4500; sales can be raised to \$50,000 with agricultural implements and stoves; the best of farming country to sell in; no waste lands; going to California to live or could not be bought; terms cash on stock and half cash on building; will sell both or separate to suit buyers. Address P. O. BOX 58, Asbland, Ohio

FOR SALE.

First-class COKE FURNACE at a bargain. Close to market. Shipping facilities unexcelled. Well located as to supplies of ore. Himestone and fuel. Whitwell hot blasts. Abundant blowing power. Capacity from 35 to 50 tons, depending on kind of stock used. Now in operation and in good condition. Address. "OPP_STUNITY."

office of The Iron Age, 77 4th ave., Pittsburgh, Pa.

FOR SALE.

The Co-operative Nail Works, of Steubenville, Ohlo, containing one spike, three 10d., four \$d., four \$d. and four 4d. nail machines; one pair of nail plate shears, one heating and one bluing furnace; one engine, 14 x 30; one steel boiler, 5 feet in diameter, 16 feet long, with 46 444-inch tubes; shafting, belting, grindstones, scales, &c. The works are in complete order for making nails of all sizes from % finishing up to 8-inch spikes. Has only run three months. Machinery brand new. Coal or natural gas can be used for fuel, as desired. Address all inquiries to CO-OPERATIVE NAIL WORKS, Steubenville, Ohlo.

FOR SALE or RENT.

The Falling Spring Furnace, located at Chambersburg, Pa. Was built for making charcoal iron, hot or cold blast, but can also be used for making coke iron. Good, clean charcoal can be secared on the furnace bank at 6cents per bushel. Best quality ores near by. Lime within ico y rds. This furnace is supplied with modern appliances and can be started at a very small cost. For further particulars inquire of

C. BURKHART & CO., Chambersburg, Pa

WANTED, the Western Agency for Iron and Bardwar ufactures for the principal cities in the West Address "CHICAGO AGENCY," 129 Dayton st., Chicago, Ill.

W ANTED—Superintending Engineer for a large works engaged in manufacture of general machinery in an Eastern city. Must be experienced and energetic. Address confidentially, with full information. "A. A. B.," Office of The Iron Age, 66 and 68 Duane strees, N. Y.

Special Notices.

Se ond-hand Machinery in Good Order. For Sale Cheap. Engine Lathe, 30 in, x 17 ft. bed. Find.

50 in, x 18 ft.

28 in, x 15 ft.

each 24 in, x 12 ft. bed. Fifield.

24 in, x 12 ft. bed. Fifield.

20 in, x 8 and 10 ft. bed. Putnam. | 24 in. x 12 ft. bed. Finled. | 24 in. x 12 ft. Fond. | 25 in. x 12 ft. Fond. | 25 in. x 5 and io ft. bed. Putnam. | 18 in. x 9 ft. | 16 in. x 6 ft. Porter. Rod feed only | 16 in. x 6, 8 and to ft. | 16 in. x 6, 8 and to ft. | 17 in. x 5 ft. Good as new. | 18 in. x 5 ft. Good as new. | 18 in. x 5 ft. | 18 in. x 5 ft. | 18 in. x 5 ft. | 18 in. x 4 ft. | 19 in. x 5 ft. | 18 in. x 5 ft. | 18 in. x 5 ft. | 18 in. x 6 ft. | 18 in. t Snaper, 10-1n. stroke. Very good. Will. Benefit & Sons.
Shaper, 10-1n. stroke. Gould.
I "each 12, 15, 20 and 28 in. stroke.
I Crank Planer.
12-1n. Drill. Blaisdeil. Good as new.
Lincoin Pat. No 2 Millers.
Linder Miller. Pond.
12 each 3 and 6 Spindlee, No. 0 Drills. P. & W. Co.
2 each Nos. 1 and 2 Screw Machines. Wire Feed.
Pratt & Whitney. Good as new.
180. 3 Screw Machine. Plain. F. & W. Co.
194-10. Drop Hammer. Beacher & Peck.
180. 52 Ferracute Press.
180. 52 Ferracute Press. mained unchanged. We quote : to Foot Presses, assorted, 8 Power "12 Punching and Shearing Machines, assorted, 2 Return Tubular Bollers, 35 H.-P.
1 Vertical Borler, 16 H.-P.
2 Holsting Kngines, 8 and 10 H.-P.
2 each vos. 2 and 3 Garvin Hand Millers. Good as new.
1 No. 2 Hand Miller. Frait & Whitney.
1 Horizontal Engine each 25 and 45 H.-P.
1 No. 2 Screw Machine. 7 Hain. Browne & Sharpe.
1 each 6 and to H.-P. Baxter Engines.
2 Also full line of New Machinery.
2 New York Agency Taylor MFG. Co., Engines,
Bolices, &c. Correspondence solicited.
2 PKENTISS TOOL AND 4UPPLL CO.,
2 P. O. Box 3562. No. 42 Dey St., New York City. W. C. Hematites, mixed lots, Nos. 1, 2 and

The entire Machinery of a

ROLLING MILL

for rolling OLD RAILS into Merchant Bar Iron for sale low. Size of train, g-inch and 16-

Also Second-Hand

STEAM PUMPS.

Size of Water Cylinder, 18 inch x 8 inch. Size of Steam Cylinder, 18 inch x 12 inch. Four of above size pumps for sale low by DAN'L W. RICHARDS & CO.

92 Mangin St., New York.

BARGAINS IN ENGINES

WE HAVE TAKEN IN EXCHANGE. rliss Beam Engines, Condensing, 400 and 60 H.-P. 150 H.-P. Wright Automatic Cut-Off Engine. 40 16 Dexter

Slide Valve Engine, Horisontal Boiler, &c Complete, 25 H.-P. Slide Valve Engine. Vertical Engine.
Tubular Boiler.
Engine and Boiler.
DEXTER ENGINE CO., 40 Cortlandt st.

FOR SALE,

Valuable Manufacturin Property. Valuable manufacturin Troperty.

centrally located in one of the largest Western
States, with a well-established reputation for the
goods of its manufacture, which or nist of Engines, Boilers, Saw and Grist Mill Machinery
and kindred articles. Property all in first-class
condition; tools and machinery in good order,
and the works now running. Parties who mean
business and desire to engage in a profitable and
well-established business of this character can get
full particulars by writing or applying in person to
M. D. WHEELER, Stapleton, Staten Island, N. Y.,
or MANNING, MAXWELL & MOORE,

111 and 113 Liberty street, New York.

FOR SALE.

Large lot second-hand Iron Tanks, all sizes and shapes, from 5.00 gals. down, and lot new 100 gal. Oil Tanks with pumps, all complete. Patterns for kolling Mill Shears complete. Lot of Bolier Shelis, different sizes. Cast Iron Kettles, cheap. Second hand Engines and Boilers, cheap. Wrought and Cast Scrap, Red and Yellow Brass, Copper, Lead and Zinc.

BUSSENIUS, CUNLIFFE & 10.,
Dealers in Scrap Iron and Oil Metals,
12th and Washington Ave., Philadelphia.

For Sale, Machinery. eavy Grand Milling Machine. New, 345 in. x 6 ft. Engine Lathe 120 in. x 9 ft.

FOR SALE,

Two Planers. One 28 x 28 x 5, \$200. One 32 x 32 x 5, \$400. The machines can be seen at work in the actory of the STILES & PARKER PRESS CO.
Middletown, Conn.

FOR SALE

The following Lathes, with counter-shafts complete, il in good working order, and other machinery, will se sold very low, as we have no use for them:
Engine Lathes, screw feed. 18 in. swing, 10 ft. beds.
Lathes, chain feed, 18 in. swing, 8 ft. beds.
Lather, chain feed, 30 in. swing, 10 ft. beds.
Berryman Heater.
Press.

Press.
Large Arnoux & Hochhausen Electro-Plating Dynamo, nearly new,
Inquire or address

y, W. WURSTER,
Spring and Axle Works,
S75 Kent ave. near Broadway) Brooklyn, N. Y.

IRON NO STEEL Rails, Blooms, Billets, Rods, &c., inspected during manufacture and on delivery at any works in

Germany or Belgium. 13 years' practical and continuous experience. Highest references. Correspondence solicited. WILLIAM OWEN,

Dusseldorf, Germany,

WANTED,

by January 1st., additional working capital. \$30. oco to \$40,000 in an established Malleable Iron and Hardware Manufactory in Philadelphia. The plant in excellent order and proprietors at present unable to fill their orders. Ten per cent. Ten per cent. annual dividend guaranteed. Address

"FOUNDER," Lock Box 1086, Philadelphia. SPECIAL RYE MIXED

FOUNDRY FLOUR. 2,00 a barrel, in strong jute sacks. CASSIUS M. PAINE & BRO., Merchant Millers. Milwaukee, Wisconsin.

Trade Report.

British Iron and Metal Markets.

[Special Cable Dispatch to The Iron Age.]

LONDON, WEDNESDAY, December 29, 1886, Scotch Pig.-The market has gained ground during the last week, makers' brands having advanced to the following figu es: oltness, alongside, Glasgow, Shotts. at Leith Ardrossan. Eglinton, Ardrossan 45/ Dalmellington, 46/ Carnbroe, 46/ Carriage from Ardrossan to Glasgow is 1/ 2 ton. Cleveland Pig.-The market has re

Middlesboro', No. 1 Foundry... No. 2 No. 3 No. 4 Forge... ..34/@31/6 Bessem r Pig.-The market has renained stationary during the past week

3, at 45/ @ 46/, f.o.b. shipping ports. Bessemer Blooms .- Blooms are higher,

having advanced to 75/@ 80/. Manufactured Iron.-The market is unchanged. Prices may be quoted as before, viz. :

Staff, Ord. Marked Bars.... Medium " ...

Steel Rails .- There is no change in the market, and prices may be quoted as follows: Ordinary sections, £3. 17/6 @ £4, f.o.b. shipping ports. Old Rails .- The market is steadier, with

Old Tees quoted 73/ @ 75/, c.i.f. New York, and sales at the lower figures. Copper .- During the week this metal has declined, Chili Bars at the close being

quoted £38. 10/ @ £39, with Best Selected

at £43 @ £44. Tin .- This metal is weaker, closing with Straits, spot, quoted at £99 @ £99 10/, and futures, £100 @ £100. 10/

Tin Plates .- The market has remained unchanged, with prices as follows:

Spelter .- The market is weaker than it has been. We quote last week's prices,

vis.: Ordinary at shipping ports, £13. 10/ @ £14. Freights.-Steam freights from Glasgow to New York, have advanced to 10/.

Financial. Office of The Iron Age.
WEDNESDAY EVENING, December 29, 1886.

The possible effects of a war in Europe and the prospects of legislation in Congress are more frequently discussed in business circles, and have an unsettling effect. The course of trade, however, is uninterrupted save by the customary lull at this season of the year, incidental to the squaring up and settling of accounts. In retail lines the holiday trade has been extraordinary, indicating a well to-do pecuniary condition among all classes. Tradesmen as a rule are cheerful in anticipation of a prosperous year. With a fair export trade in progress, an unusual influx of foreign gold and easy money, there is little in the prospect to excite apprehensions of any kind. The various industries, too, are reported in a healthful condition, all branches of labor, manufacturing and mechanical alike being fully employed, with no excess of production. Among workers in iron and steel the chief difficulty is embarrassment from the pressure of orders, and it is noticed that as a consequence the demand for foreign raw material and partly manufactured steel is increasing. Dry-goods jobbers report that the product of the mills, both as to cottons and woolens, was never so largely controlled by purchasers, and that the shipments early in January will be unusually large. Cotton is dull and weak, with receipts at the ports very full. Breadstuffs are strong and a trifle higher. Wheat ruled quiet, but at the close there is a fair business for export at all the Atlantic ports under stimulating cables. Corn and provisions are firm. Petroleum is active and stronger. Hemp is firm. Oils and naval stores quiet. Sugar steady. Coffee firm. In freights not much animation.

The Stock Exchange market has been dull with a declining tendency. Weakness was caused by the cossation of buying in London, and the threatened Reading strike affected other coal stocks unfavorably. The general disposition was to pospone busine s until after the holidays. The favorable bank statement had little influence. Since Monday there have been some signs of recovery from the previous depression, but the recovery ranges only I % @ I 1/2 % with few exceptions, and is confined to some half dozen specialties in which there was a short interest. Quotations are as follows: Burlington and Quine, 136; Cameron Coal,

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Trade Report.

NEW YORK.

American Pig.-Reports are somewhat contradictory, the chief interest, however, centering on No. 1 Foundry, which is firm. It is stated that \$21.50 has been paid for spot lots of Thomas Iron from second hands, and that the Thomas Iron Company have refused \$21 for round blocks. For small spot lots, \$20.50 @ \$21 or even more would have to be paid for standard brands, but for larger quantities very good brands are readily available for early delivery at \$20 at tidewater. There is a fair volume of inquiry, with a moderate amount of business doing for delivery during the first three months of the year. By some the scarcity of No. 1 Foundry is partly attributed to the fact that very little Southern Iron is now being delivered, since the steamship lines are crowded to full capacity handling cotton and other goods, and are declining to carry Iron for the present. The question of freights from Southern furnaces has not been settled as yet. We quote No. 1 Foundry. \$20 @ \$21; do., No. 2, \$19 @ \$19.50, and Gray Forge, \$17 @ \$18.

Scotch Pig.-Inquiries were in somewhat heavier lots, and sales of quantities as large as 500 tons at a time have been made during the week at full prices for rear-by delivery. The market is firm. We quote Coltness, \$22 @ \$22.50 to arrive; Shotts and Langloan, \$21.50 @ \$22; Summerlee. \$21.50 to arrive; Dalmellington, \$20 @ \$20.50; Clyde, \$20 @ \$20.50, and Eglinton, \$19.50 @ \$20.

Ressemer Pig.-The market for foreign Bessemer is quiet, only small sales of special grades having been made. Mailadvices report a movement among the men at the furnaces in the West Cumberland district to demand an advance of 15 % in their wages. At a conference the men offered to accept 5 %, but the masters declined to give any ad-|sense 1887 will be one of the best years on vance at the present time. When warrants rose to 47/6 \$\text{\text{\$\gamma}}\text{ ton they would advance} wages 5 %. The men refused to accept this offer. There is therefore some possibility of trouble in the principal English Hematite district. Nothing of any consequence is reported in Domestic Pig, which is offered as low as \$18.50 at furnace. We quote \$18.50 @ \$19 at furnace.

Spiegeleisen .- The market is very quiet, with little inquiry, and no prospect of any early movement, since all the large consumers are well filled for at least six months of 1887, while some of them have bought enough to cover their probable requirements for the entire year. We quote \$28.25 @ \$28 50 for 20 %. \$32.25 @ \$32.50 for 30 % and \$23 for 10 % to 12 %.

Bar Iron.-The inquiries are not as large in the aggregate as they have been, but the market continues strong, with an upward tendency. We quote Common 1.70¢ @ 1.80¢; Medium, 1.80¢ @ 1.90¢, and Refined, 1.95¢ @ 2.15¢, for round lots on dock.

Structural Iron and Steel .- The local market is quiet. We quote according to quality, for Angles, 2.25¢ @ 2.50¢, delivered, and Tees at 2.7¢ @ 2.9¢, for round lots. Steel Angles are quoted 2.40¢ @ 2.60¢, according to quality. Store quotations remain 2.60¢ @ 2.75¢ for Angles and 2.9¢ @ 3¢ for Tees. American Beams and Channels are 3¢ base from dock for all orders.

Plates .- We quote for round lots: Common or Tank, 2.45¢ @ 2.6¢; Refined, 2.50¢ @ 2.60¢; Shell, 2.7¢ @ 2.8¢; Flange, 3.70¢ @ 3.8¢; Flange, Extra, 4¼¢ @ 4½¢. For small lots of Steel Plates the quotations are as follows: Tank, 2.90¢ @ 3¢; Ship, 3¢; Shell, 3¼¢ @ 3.50¢; Flange, 3.70#@3.90#, and Fire-Box, 41/4 #@

Steel Rails .- The market has been quiet only a few small sales being reported by Eastern mills. The majority of the mills are asking \$37, and \$36.50 is the lowest figure named for moderate-sized lots for delivery during the first six months of 1887. Beyond that for good sections in large blocks \$36 might prove tempting to some of the mills, but no business of this character has vet come up. There are some large lots in the market for spring and summer delivery, but wherever the territory is accessible to foreign mills the orders are likely to go to that quarter. There are rumors of sales of 21,000 tons to the Pacific Coast at \$41, and of 10,000 tons to the Gulf. Cables range between £3. 17/6 and £4, though it is reported by good authority that English Rails have been offered at Montreal as low as \$21.50. We quote \$36.50 @ \$37 at Eastern mill for standard sections. Light sections are in good demand, and may be quoted \$39.50 @ \$40 for 30-lb Rails.

Rail Blooms,-We note a sale of 6000 tons during the week at private terms. Buyers do not see their way clear to going higher than \$29, while sellers name \$30.

Billets and Slabs .- Early in the week there was a sale of 10,000 tons of Billets, and there have been sales of moderate lots of Nail Slabs on an advancing market. It is reported that among the few foreign mills which have arrangements for rolling Slabs the majority are well filled up for early delivery. We quote \$31 @ \$31.25.

Old Rails.-The market has taken an-

January shipment, reported at \$25, 3000 month during the year: tons of Foreign T's, January, February and March shipment at \$24 50 ex-ship, and two lots aggregating 2000 tons at \$24.50 and a shade under. We hear of sales of small spot lots of American Rails at considerably under these figures. Holders of Iron ask \$25 for early shipment of Foreign T's and \$26 @ \$26.50 for Double Heads. There is still some inquiry, rotably from the A round lot at Galveston is held at \$25, delivered Philadelphia or New York, and other Southern lots at a shade under that figure.

Scrap.-The market has advanced, and ander moderate sales the price has risen to \$22.50 @ \$23, with a small supply at this

Steel Scrap .- There is some inquiry for Foreign Bloom Ends and Crop Ends, which have advanced to \$22 75 @ \$23, which for the time being is above buyers' views. Leaf Spring, of which there have been sales, is

Rail Fastenings .- We quote Spikes 2.25¢ @ 2.40¢, delivery New York. Angle Fish Bars may be quoted 2¢@ 2.10¢. Bolts and Square Nuts are 2.85¢ @ 3¢, and Bolts and Hexagon Nuts 3.10¢ @ 3.25¢.

Philadelphia.

Office of The Iron Age, 29t South Fourth St., PHILADELPHIA, December 28, 1886.

The general re ult of the year's business in Philadelphia and vicinity has been fairly satisfactory. It commenced well, but was badly broken up by the labor troubles during the spring months. It took 3 or 4 months to restore the statu quo, so that, as a matter of fact, there has not been more than a third of the year that can be called really good. The outlook is most encouraging, however, and it is thought that in a business record. Prices have not been remunerative so far ; what little advances have been made are more than offset by the advance in labor, higher cost of raw material, fuel, freights, &c. But in this respect there is a general expectation of improvement. Advances are pending in almost everything, and a large business at paying rates seems to be pretty well assured for some time to come. Details are omitted, for the reason that almost every one makes the same answer, something about like this: "Busier than last year, a great deal of work coming in. but prices are low. Should have done much better, but the strikes hurt us in the spring. Expect to advance prices a little after the first of the year, and then we shall have nothing to complain of." Large concerns, such as the Baldwin Locomotive Works, and engineering establishments, such as the J. P. Morris Company, Wm. Sellers & Co., Bement, Miles & Co. and others, report a steady increase in the demand, with a fair probability of working up to their full capacity at an early date. The shipyards are all getting to be very busy, and, taking the Iron interests as a whole, it is safe to assume that there never was at any time so large a number of men employed or so large an output of goods in Philadelphia as there is to-day. There are some well-known firms that are laying back a little for better prices, and if they are not all alike crowded with work it is because some prefer to take their chances of the market a few weeks later on. It will be seen therefore that while the volume of business is of extraordinary magnitude the general idea is that there are still better times near at hand, inasmuch as with a demand up to the fullest capacity there will also be better

prices than can be had at present. Pig Iron.—The year 1886 has doubtless the Iron Trade-not only in the volume of business, but the vast preparations that have been made for its future development. New fields, new plants, combined with experience, capital and skill are being utilized to the utmost extent, so that on the present flood-tide of prosperity, the United States is likely to almost equal and may soon exceed the output of the "greatest commercial nation of the world." The year now closing has had serious set-backs, otherwise the volume of business would have been materially larger than it has been. The labor troubles in the spring of the year not only checked the improvement but caused a reaction which for a while threatened serious consequences. Comparing prices in in Old Rails. Other articles were not quotable lower, but sales could only be made by granting concessions, so that the sixth nonth found matters in less favorable condition than they were during the first month of the year-July, August and September showed a gradual tendency toward improvement, especially in Finished Iron, but there was no change in Pig Iron until toward October, when prices began to stiffen, which feature date. The advance from the first of Janother start. During the week there have a little more because of the decline pre- prompt deliveries, and in consequence were consumers who are buying for actual con- offering, and the stock is rapidly being re

and March shipment, report at \$25, 5000 tions show the course of the market from &c., with foreign makers. Range of prices apprehension. While the volume of busitons of Foreign Doubles and T's affoat and month to month. Quotations first of each as follows:

N	o. 1 Fou	ndry.	No. 2	do.	Grav F	orge.
Jan	\$18.50@S	19.00	\$17.00@5	18.50	\$16.25@.	16,50
Feb	18.50@	19.00	17.50@		18,500	17.00
March.	19.00@		18.00@		17.00%	
April	18.50@	19 50	17 2500	17.75	16.50@	17.00
May	19.00@		17.50@		16.50@	16.75
June	18,50@	19,00	17.25@	17.50	16,25@	16.50
July	18.25@	19,00	17.00@	17.50	16.00@	16.50
Aug	18.25@	19.00	17.00@	17.25	15.750	16.08
Sept	10.25@	19,00	16.75@	17.25	15.7500	16.25
Oct	18.50@	19,50	17.00@	17 50	16.00@	16.50
Nov	19,000	19.50	17,50 a	18.00	16.50%	17.00
Dec	20.000		18.00@		17.50@	
Dec. 28	20.50@	21.50	19.00@	19.50	17.50@	18.50

prices, some very experienced people say much higher prices, but unless something very unexpected happens, it is difficult to see how they can be maintained. Production of Pig Iron during the past six months is estimated at not less than 3,000,000 tons, with a prospective output of still large proportions during the next six months. Then our imports of Pig Iron, Blooms, Finished Iron and Old material, have been just about double what they were in 1885, with every probability of an extraordinary increase from this time forward. The average up to November I was over 60,000 tons per month, and for the next two or three months will be at least 100,000 tons per month, as anything like general buying only began a few weeks ago. With such an enormous supply, therefore, it is difficult to see how materially higher prices can be maintained for any length of time. The magnificently prosperous condition of the country is admitted on all sides, as well as its rapid development and enormous consumptive capacity. But there is too much reason to fear that the productive capacity is lost sight of in the eager desire to lay in stocks for future requirements. Of course prices will advance and keep on advancing so long as consumers each insist upon contracting for twice or thrice their ordinary quantity. And by the same rule the decline will seem interminable when they stop buying, use up all old stock and take only hand-to mouth lots. It is therefore very difficult to form any definite opinion as to the actual increase in consumption. It is large beyond doubt, but cannot be in any like proportion to the demand, hence the feeling of distrust as regards higher prices. Moreover, contingencies may arise to materially change the outlook a few weeks hence. We believe in steadily hardening prices so long as the developments continue favorable, but it will be a misfortune to advance them to a point which will induce large foreign shipments, and by the time they begin to come in find that our own mills and furnaces could supply all that's required. This was the case in 1880-1, and indications pointed to this price being mainmay be so in 1887 8 or 1888-9. Present quotations are probably not only safe, but may seem low two or three months hence, but During the last four months, however, the if a further advance is warranted at that time consumers will find their position improved in proportion, so that they will not be hurt a great deal, even if they have to pay more money. The increased cost of production during the year is estimated at not less than \$2 39 ton.

Wanufactured Iron .- The first three months of the year developed an improving demand for all kinds of Finished Iron, bu the labor troubles in April and May had a disastrous effect on the market. The three months following, June, July and August, were exceedingly unsatisfactory, prices (as will be seen below) being at the lowest point not only for 1886, but as low as at any time in the history of the trade. Commencing with September a slight improvement set in, which was further confirmed in October, and has been still more marked during November and December. The chief support of the market has been found in the demand for Skelp Iron. Never in the entire history of the trade has there been such a heavy and continuous demand for anything, and at this writing there is not the slightest inbeen the most important in the history of dication of its being satisfied. The discovery of natural gas has caused an enormous demand for Pipe, and so far as can be seen, it is likely to continue almost indefinitely. The demand for Merchant Bars has not been large until recently, but the demand for Skelp Iron helped the mills wonderfully. Since September the demand for Bars has greatly improved, car builders having become very heavy consumers, in fact, consumption has increased along the entire line, and almost every one that uses Bar Iron has become a steady buyer. The plate mills have had a still better time, the demand having been at least satisfactory all through the year. September developed an improvement in prices, which has been maintained to this date, with indications of further advance in June with those in February a decline of the near future. Mills that have been about 371/20 P ton in Pig Metal could be closed for years have been started up on the near future. Mills that have been noted, \$1 in Scrap Iron, and from \$1 to \$2 Plate and Skelp Iron, so that the output during the next three months will be the largest on record, but in the meantime there appears to be buyers for the entire product. The increase in cost of production is estimated at from \$3 to \$5 79 ton as compared with this time last year. The low price of Steel Plates during the summer absorbed a great deal of business from the boiler makers, and is still rapidly replacing Iron in the higher class of work, although has been continuously maintained up to this prices have been advanced about 1/4 ? 1b. A good deal of business has been sent uary to date averages about \$1.50 \$\text{P}\$ ton on mill Irons, and \$2 on No. I Foundry.

There is still more or less apprehension of a commoner qualities of Steel Plate. Bridge collapse, but as long as there is an absence Pittsburgh, for Doubles, and Tees at \$23 @ Taking the advance from June it would be builders claim that they could not secure of speculation and the demand comes from \$28.50.

		Best r	efined rs.	Ship	plate.	Tank	iron.
	January	1.8	to 1.85	2	to 2.1	2.1	to 2.8
	February.	1.8	to 1.85		to 2.1	2.1	to 2.2
)	March		to 1.9	2	to 2.1	2.1	to 2.2
	April	1.85	to 1.9	2	to 2.1	2.1	to 2.2
000000	May		to 1.9	2,05	to 2.1	2.1	to 2.2
í	June	1.8236	to 1.85	2.05	to 2.1	2.1	to 2.2
3	July	1.8	to 1.85	2.05	to 2.1	2.1	to 2.2
	August	1.8	to 1.85	2.05	to 2.1		to 2.2
	Sept	1.85	to 1.9	2.05	to 2.1	2.1	to 2.2
?	October	1.9	to 1.95	2.20	to 2,25	2,25	to 2.30
,	Novemb'r	1.9	to 2¢	2.20	to 2.25	2.25	to 2.80
1	Decemb'r	1.9	to 2¢	2.80	to 2.85	2.85	to 2.50
,	Dec. 28	2	to 2.1	2.4	to 2.5	2.4	to 2.5

Steel Rails .- The Rail trade has been so fully discussed in recent issues of The Iron Age that it seems almost superfluous to say The immediate outlook indicates higher anything at this time. The position in brief is this: Production during 1886 estimated at about 1,250,000 tons; contracts on hand for 1887 about 1,000,000 tons; capacity of production about 1,750,000 tons; range of rices as follows

Parcos es	,	4	.,	-		_	Ψ,		,	۰															
January.					۰														.5	8	1.	50	(00	\$85.00
February											٠						 			8	4.	50	(0	85.00
March												 					į.			8	4.	50	1	à	85.00
April			۰				۰													8	4	50	(0	85.00
May		٠	,	0 0		۰						 								83	5.	00	(0	
June																				8	4.	50	1	0	85.00
July					0.1							 								8	4.	50	1	0	85.00
August												 				٠		۰		83	5,	00	1	400	
Septembe	r																۰			8	5,	00	(0	
October																				8	ŧ.	50	6	a	85,00
November																									
December								٠				 								8	ß,	10	1	0	
*Decembe	er	*	2	3.		0		0							۰					3	7.	UO	1	0	38.00
* At mill.																									

Old Rails .- Prices have shown some wide fluctuations, as will be seen from the quotations herewith. The latest sales were at \$24.75 for T's and \$25.50 for Bridges. It is estimated that between 50,000 and 60,000 tons of Old Rails are either affoat or under contract for early shipment to the United States. Range of prices as follows :

Jan'v				August.			
reb'y			22.50	Sept'r	21.00	0	21.50
March	21.50	0	22.00	October	21.50	60	
April	22,00	0		Nov'r	22.00	a.	22.25
May	21,00	a	20.50	Dec'r	22.25	a.	22.50
June	20.00	(a)	20.50	Dec. 28.	24.75		25.25
July			19.50	2001 101		-	1000 1 100

Scrap Iron.-Prices have varied about in the same proportion as Old Rails, and are now at the highest point of the year. Cargo lots sold yesterday at \$23, with that bid for more. Range of prices as follows:

No. 1 Ser	rap.		No. 1 Sc	rap.		
Jan'y	\$18.50 @	\$19.50	August.	\$17.50	@	\$18.50
Feb'y	19.50 @		Sept'r			
March		22.00	October			19.50
April	20.00 @		Nov'r			19.50
May	20.00 @	21.00	Dec'r			21.00
June	18.50 @	20.00	Dec. 28.	23,00	0	24.00
July	19.00 @	19.50				

Nail .- The Nail trade during the past

year has experienced many vicissitudes and set backs as regards prices, and in some instances, especially in New York and vicinity, prices declined very rapidly, selling as low as \$1.65 @ \$1.75. The year opened with Nails selling at \$2.65, less rot W keg for carload lots. Prospects were bright, and tained, but in the spring months the labor troubles had a bad effect on the trade. various industries connected with the Iron trade assumed a flourishing aspect. Manufacturers of Nails, anticipating a revival of interest in their line, began making Nails until production far exceeded consumption. while outside mills which had lain idle for years started their fires, the result being more Nails than were needed. Then came general demoralization in price, New York and Baltimore leading, and, as mentioned above. Nails sold as low as \$1.65 @ \$1.75. After such a break a reaction was in order, and prices reacted to \$1.90 @ \$2, held there for some time, and to-day the poorest Nails sold in Ne w York command \$2 @ \$2.10, carload lots. Philadelphia mills, however, have been comparatively firm and steady, selling as low as \$2.10, and perhaps in some extreme cases as low as \$2 carload lots, but nothing below that. Price today is \$2 25 from store, with the usual discount. The volume of business during the year has been very large, but not in proportion to the production. The outlook for 1887 is bright, and unless all signs fail the price for some time to come. of Nails will be materially advanced during the coming year. During the month of De cember there were plenty of inquiries for Nails 1887 delivery, but as far as could be ascertained mills were not inclined to sell. In this connection may be mentioned Steel Nails, which have lately become quite a factor as a competitor to the Iron Nail. The only objection to the Steel Nail is the difference in price, it being from 10¢ to 15¢ \$ keg dearer than the Iron Nail; and now that Steel Slabs can be laid down at mill for less money than Muck Bars the only objection seems in a fair way to be removed. The Steel Nail mills have taken all the trade that is willing to pay a larger price for a better article, and if price is brought down to a level with the Iron Nail the chances are certainly in favor of an increased demand for Steel Nails.

Pittsburgh.

Office of The Iron Age, 77 Fourth avenue, PITTSBURGH, PA., December 28, 1886.

The fact that the close of the year is so near at hand, when there is nearly always a lull, has had no influence upon the Iron and Steel trade; demand especially for the raw material, instead of falling off, is increasing. Brokers continue to report that the great difficulty with them is to get the Iron to sell; consumers are taking everything that offers, pay more for each subsequent purchase. been sales of 3000 tons Foreign T's, February viously mentioned. The following quota- compelled to place orders for Bridge Plate, sumption, there is not much ground for the duced

ness is larger than ever before, the general condition of the market never was healthier than at present. As compared with the lowest point there has been an advance in Mill Irons of from \$5.50 to \$6 \$7 ton; while sales are made during the week under review at \$20, cash, some of the mills are using Iron bought at \$15. Mill owners generally are pretty well stocked, and some could, if so disposed, realize handsomely by selling their raw Iron instead of working it up, which they will not do, as it is important for them to hold their trade.

Ore.-Large contracts for Ore have been made here for delivery in 1887, both of home and foreign, which may be taken as evidence that a good Iron trade is expected the coming year by furnacemen. The indications now are that the consumption of Ores in this district, which includes the Shenango and Mahoning valleys, will exceed that of any former year.

Pig Iron.-Notwithstanding the close of the year is very close at hand, when there is almost invariably a cessation in business for a time in order to take stock, make repairs, &c., there is no abatement in demand nor has the advance in price been checked. During the week under review sales of Mill Iron have been made at an advance of fully \$1 \$7 ton, and all other grades went up from 50¢ to 75¢. A couple or three weeks ago some of the knowing ones predicted that standard brands of Gray Forge would go to \$20, four months, by the close of the year. whereas several large sales have been made within a few days at \$20 cash, equal to \$20.50 four months; and there is just as likely to be a further advance before the close of this week, which ends the year. All the furnaces hereabouts are sold ahead, and some of them are now out of the market, as they are not in condition to take additional contracts. There is an occasional sale of Anthracite Iron in this market, but it appears that the furnaces in the Anthracite region can do better at or near home. We quote prices as follows:

No. 1 Foundry	\$21.00 @	\$21.50, 4 mos.
No. 2 Foundry	20,00 @	20.50.4 **
No. 8 Foundry	18.50 @	19.00, 4
No. 1 Gray Forge	20.00	20,50, 4 "
No. 2 Gray Forge		19.50, 4 **
Bessemer Iron	21.50 @	:2.00, 4 **
Cold Biast Chargost	24.00 @	27.00, 4 "

Included in the sales reported were several round lots of Gray Forge at \$20, cash, and a lot of 3000 tons of Bessemer at \$21, cash, at furnace in the Mahoning Valley

Muck Bar-Continues in demand, with but little offering, and prices are still tending upward, in sympathy with Pig Iron, while we are not advised of actual sales above \$33 cash it is doubtful whether sellers could now be found under \$34, and some are asking \$35. It appears that nearly all the mills making Muck for sale are sold several months ahead, and the offerings are light in consequence. The above may appear like extreme prices, yet they are not out of the way when the price of Pig Iron is taken into consideration.

Manufactured Iron. - There is no abatement in demand, both jobbers and consumers realize that prices are likely to go still higher, and they are placing all the orders they possibly can, anticipating future wants. However, as noted in our last report, manufacturers almost without exception are refusing to book orders for the future except with the distinct understanding that they are to have the prices ruling at the time of delivery, whatever that may be. We continue to quote prices for immediate delivery upon a basis of 1.90¢ @ 2¢ for Bars, 60 days, 2 % off for cash. There is no indication of any falling off in demand soon, as in addition to the regular merchant trade, which is large, the railroads will be large buyers

Nails .- The demand continues light, and there is not likely to be much, if any, improvement until the spring trade opens up Trade is nearly always dull during December and January; it is probable that the most of the factories now in operation will shut down next month to take stock and make repairs. We continue to quote Iron Nails in carlots and upward at \$2.10, 60 days, 2 % off for cash, and Steel Nails at 10¢ # keg additional. The rates fixed at the last meeting of the Western Association at Cincinnati are not being maintained here, because our manufacturers have to compete with Eastern Nails which are being offered in this market considerably below the price fixed by the Western Association

Wrought Iron Pipe,-While there is a falling off in new business the mills are still busily employed working up former contracts. No change in prices. Discounts on Black Butt-Welded Pipe in Car Lots and upward 371/2 %; Galvanized do., 271/2 %; Black Lap Welded, 55 %; Galvanized do., 371/2 %; Boiler Tubes, 45 %; Casing all sizes, 471/2 5; 2-inch Tubing, 16# 19 foot net; 2-inch Line Pipe, 14#; 8 inch Drive Pipe, \$1.40.

Old Rails.—The market continues in an excited and unsettled condition, and quotations are only good for the moment; prices and for some time past they have had to have still further advance I, and there is no telling now where they will go to. We There are but very few American In regard to Old Steel Rails there

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up well, and prices are firm but unchanged; the lead, and with nearly all the factories best brands of Tool Steel 8¢; American Blooms and Billets continue in demand and production and consumption would not leave with but few offering prices are still terding upward; we now quote at \$33.50 @ \$35, cash, as to quality size delivery. Nail Slabs also tending upward, although as yet we have heard of no sales above \$33, cash. Foreign Billets are now quoted at \$32 @ \$32 50. American Crop Ends continue very scarce, and in the absence of recent sales or reduce present prices. may be quoted nominally at \$24.75 @ \$25.

Railway Track Supplies .- There is a continued good demand, and prices are firm, the last week the market made a remarkable and will probably go higher within the next week or two, owing to enhanced cast-off raw material. Spikes remain unchanged at advantage of the holiday season to test the 21/2¢, 30 days, delivered; Splice Bars are feeling of furnacemen and sales agents on quotable at 1.90¢ @ 1.95¢, and Track Bolts at 3¢ with Square and 3.10¢ @ 3.20¢ with

Steel Rails-Are firmer and higher, but there have been no sales reported here recently, and it is difficult to give reliable quotations in consequence.

Old Material.-There is a continued good demand for all kinds of Old Material, and prices are still tending upward. We quote: No. 1 Wrought Scrap at \$21 @ \$22; Wrought Turnings, \$16 @ \$16.50; Old Car Axles, \$26 @ \$27; Cast Scrap, \$17 @ \$17.25 gross; Cast Borings, \$13@\$13.25; Old of at least 50¢ P ton. The market is ex-Car Wheels, no sales here; are worth more West at Car factories, where they are being remelted, than can be obtained in this market. Open Hearth Scrap Steel, \$22 @ \$23 gross; Crucible Scrap, \$26.

Coke .- Blast Furnace Coke remains unchanged at \$1.50 \$1 ton on cars at ovens. There is a continued complaint of a scarcity of cars, and some of the furnaces west of here, it is said, have had to bank up for a \$19.75; No. 3 and No. 1 Mill, \$19. It is rewant of Coke -not that there is a scarcity of Coke, but because of difficulty in getting

Chicago.

Office of The Iron Age, 36 and 38 Clark St., Cor. Lake St., Chicago, December 27, 1886.

Hardware.-All large jobbing houses are having a period of respite from active business. While the past week was shortened but one day, very little trading was done except on telegraphic orders and several articles which showed excessive demand for holiday use. Mail orders were light and traveling salesmen had all reported at their respective houses on their last trip for the year. In this connection many changes have been made, and when they again take to the road after the first of January, cards of new houses will be presented to their old cust mers and new faces will be seen in the haunts of those who have been recognized as "regulars" for years, Changes about to be made in prominent houses promise fresh vigor and relentless competition. Stock taking is in active operation, and the entire inside force are devoting their energies to completing the balance-sheet of the year's business. Manufacturers are soliciting orders with considerable activity, and handsome sales to the jobbing trade are reported on numerous lines of staple goods. New price lists are being issued, but none presented in the past week show any im- inst. will advance the price on Beams and portant change over present quotations. Channels many contractors have been plac-The entire trade is earnestly striving to ing orders for next year's delivery. The perfect their arrangements for an early and demand for Bridge Material has also been active spring business.

Barb Wire .- The market was very steady under light orders. Jobbers renew the quotation of 31/4 for Painted Wire and 4¢ for Galvanized in small lots. Manufacturers quote 3 10# for Painted and 31/4# for Galvanized Wire, immediate shipment. Dealers being unable to place orders at the Nos. 10 to 14, 2.70¢. Dealers being unable to place orders at the old price, the majority of them have temporarily withdrawn from the market. The racedingly good for this season of the year.

Nos. 10 to 14, 2.70¢.

Bar Iron.—Jobbers report mill orders 4,250,000 tons. Two large Bessemer companies have established their opening price been readily disposed of at full prices based Messrs. Hall, Bootly disposed of at full prices based Messrs. Pool Association held a meeting last week Their difficulty in placing orders for imme- at \$7 \$7 ton. There is no reason for alter and demonstrated their inability to complete diate delivery has induced them to make an ing any of the opinions expressed last week the agreement, so that it will not become operative on the first of the year. Those in @ 2.20¢ rates to all classes of trade. Manu- ers and furnacemen are so nearly agreed authority are reticent as to the actual situa- facturers are asking 2¢ rates for Chicago that it is difficult to strike a discordant tion, which is not regarded as favorable to delivery, and continue to refuse orders for an early settlement.

Nails -Singular as it may seem, the deweek was considerably in excess of the week previous. Jobbers' nominal quotation for Steel Nails from store is 2.45¢ in small lots, with the usual discount for carloads, and it is presumed that the price is obtained on only a light trade doing in small lots from in car lots. Rumors which originate in very good quarters are to the effect that prices on the latter grade are weak and shaded to a greater extent than the trade are willing to acknowledge. Eastern manufacturers have been trying to get orders from jobbers, and the inducements offered indicate their anxiety to sell. Prominent Nail men here prophesy a 2.50¢ card at the next meeting of the makers for Steel Nails, but there seems to be a suspicion among large consumers that the present weakness in Iron Nails may retard a further advance. The Nail market at the moment is hard to define, The unremunerative side is pitted against overproducing capacity, and just how to sustain prices on a paying basis is a problem which gives a great deal

does not appear to be much inquiry here, ing. If the manufacturers of Iron Nails in and in the absence of sales we omit quota- the East could be excluded from this market there would be less trouble in outlining Strel .- The Merchant Steel trade keeps their policy. Steel Nails are decidedly in in the West closed down the present rate of much of an accumulation for spring. That would virtually maintain the relative value between the Steel and Iron Nail, but with Eastern manufacturers standing ready to dump Iron Nails in this market whenever they can get a reasonable profit, it is difficult to say whether it would be better to advance

> American Pig Iron .- Considering the amount of time devoted to business during showing. Judging from the number of personal inquiries, out-of-town consumers took lots ranging from 500 to 3000 tons for delivery during the first three months of the The demand for small lots, immevear. diate shipment, was less active, but quite a good trade was done in carloads of special brands, which are quoted at \$23, cash. We hear of no Iron offered less than this figure. and it is doubtful whether as a matter of accommodation any of the furnacemen would sell at less than \$22 50. Makers claim that they are not desirous of advancing prices further, but each week witnesses what might be called a voluntary increase citable and unsteady, and it is said that under present conditions a bid of \$25 on round lots of the best brand of Lake Superior Charcoal Iron covering a year's delivery would not be surprising. Coke Irons are quoted at \$22 for No. 1, \$21 for No. 2, Mill Iron, \$19.50; Ohio Standard Blackband, \$23 50 @ \$24; Jackson County Silvery, \$21; Hanging Rock, \$22. Southern No. I is quoted at \$21.50; No. 2, \$20.25; No 21/2, ported that prices have advanced at Southern furnaces, but no sales have been made as can be learned. There is scarcely any that an advance in price is of no importance beyond putting the Iron entirely out of the reach of consumers for the time being.

Merchant Steel .- Sales agents report the market quiet and steady at the following quotations: Ordinary grades Tool Steel, 71/2 @ 81/4; Specials, 13 @ 20 ; Crucible, 4¢; Open-Hearth and Bessemer Steels. 21/2 @ 3¢; Spring Steels, 21/4 @ 4¢; Sheet Steel, 7¢ @ 11¢. Inquiries are quite numerous for delivery during the early part of January from the merchant trade. Several of the large manufacturers have sent out specifications for their year's supply on which prices quoted have ranged from 14¢ to 15¢ higher than those made in the last six months.

Steel Rails .- No transactions of importance are reported. The market is nominally quoted at \$39 @ \$40. There are several large orders in view for roads which have very recently been projected, and mills here are so full of work for the time of delivery mentioned that the orders are likely to go to Eastern mills.

Structural Iron .- Upon the belief that the combination at its meeting on the 28th very good and prices steady at the advanced figures. We correct our price of last week and quote T's at 2.65¢ at mill and 2.80¢, Chicago; Angles, 2.30 at mill; Plate, 2.40¢, mill, and 2.55¢, Chicago; Tank Iron, 2.45¢, mill; Car Truck Channels, 2.80¢, mill; Car Axles (Scrap), 2.40¢, mill; Heavy Sheets,

advance in prices and they now quote 2.10¢ regarding next year's freight rates. Deal-January and February deliveries. On the Best Refined New Puddled Iron from store. mand for Steel Nails in carload lots last 2.25\$ is quoted as bottom price in small business last year. Several thousand tons lots. Inquiries for round lots to be delivered of Lake Superior Ore came down this week in the next three months are quite numerous, but not entertained by jubbers.

Old Rails .- The market remains in about the same position as last reported. Purthe majority of sales. Iron Nails are in chasers quote \$24.50 to \$25.75. A small lot very much less demand in large lots and was offered during the week at \$27. Old Steel Rails range from \$21.50 to \$23. Both store. Jobbers quote 2.35¢, less 5¢ \$\ keg grades are scarce, and the price that might be obtained would depend very largely upon the condition of the mill.

> Black Sheets .- Jobbers have had a fairly good trade for Black Sheets lately, and prices have been well maintained at 3¢ for No. 24, 3.10 for Nos. 25 and 26, and 3.20 for No. 27.

Galvanized Iron.-Jobbers are highly at private terms. gratified over the demand and its continuation during the month of December. They report a better trade this month than they have had at any time previous for the same period. Prices are fairly steady and stocks in the best grades light. Jobbers quote in small lots Juniata, from store, 60 % off, and Charcoal, 60 % and 5 % off.

Old Wheels.-One sale of 1000 tons is

demand for immediate and future delivery are quoted at \$22.50 cash, although the sale ever, is for coke irons, which are not only round lots are asking \$20.

Scrap Iron.-The market has been quiet for delivery during January, but no sales of importance were made. We quote No. 1 Forge \$22; No. 1 Mill, \$16.50; No. 2, \$11.50; Cast Scrap, \$17 gross ton; Car Axles, \$24; Wrought Turnings, \$12; Cast Borings, clean, \$10; Stove Plate, \$9.50.

Chattanooga.

Office of The Iron Age, Carter and Ninth Sts., CHATTANOOGA, December 27, 1886.

Many of the factories are closed down, stensibly for repairs and stock-taking, but really from the indifference of the men to work during the holiday season, and this is especially the case where most of the labor s colored; other than this feature the situation is about the same as before. In the general wholesale Hardware business, nearly all the merchants report an exceedingly good trade, and are laying in larger stocks, to meet the prospective heavy business of the coming year.

Pig Iron.-The past week has developed a yet more conservative feeling among producers, and the feeling is general that prices will advance but little if any more than those ruling at present. Most of our South ern furnaces have had their regular customers for a long time, and the disposition seems to be to take care of these at all hazards, and ignore entirely all efforts of speculators to put prices up to unreasonable figures. The profits of the furnaces are now satisfactory, if prices can be kept at present figures, and, if there is no strong speculative feeling developed, there will be no difficulty in keeping the market on its present plane. The question of blowing in the new plants is not lost sight of, for they are being pushed ahead as fast as possible, and the introduction of the product of ten or twelve 100 ton furnaces in the market will produce a very salutary effect upon a strained marin this market above figures named so far ket, should such a condition of affairs arise For purposes of consumption, \$17 is consid demand for the Iron at the figures named, so ered the standard price for leading brands of No. 1 Foundry, although the Forge Irons are correspondingly a little higher. arises from the fact that large quantities of the best grades of this brand are used almost exclusively in some of the larger foundries. Shipments to Eastern points have fallen off about one-half; prices to Western points have been ruling higher than to the East; besides, there has been considerable difficulty in making shipments to the East for want of transportation facilities.

> that are being made by many of the manufacturing enterprises to increase their capacities they are anticipating a full line of orders for the coming year. The following parties are enlarging their buildings with a view of doubling their capacity in the immediate future: G. W. Wheeland, foundry W. B. Seymour & Co., sash, doors and blinds; Loomis & Hart, furniture; Morrison & Woodward, house trimmings; Chattanooga Plow Company; Montague & Co., drain and culvert pipe; Willingham & Co. sash, doors and blinds; and all are making some improvements in the way of new machinery, &c.

Cleveland.

CLEVELAND, December 25, 1886.

Iron Ore. - Additional inquiry only serves opens in the spring. Many mine owners believe that not less than 1,000,000 tons have been purchased. The amount is certainly very large and indicates transactions ? 1b. Ores of all standard brands will note. open the season from 25¢ to 50¢ higher R ton than was paid at the beginning of via Chicago, and more has been bargained for. Specular and Magnetic Bessemer are quoted at \$7 @ \$7.50, and Bessemer Hema tite at \$5 50 @ \$6 25. The developments of the next few weeks will be of interest to ironmen. Many believe that before the ice is out of the way of navigation more than half of the Ore to be used next season will have been bought. The lively trade of the past two weeks seems to fully warrant this estimate. Mine owners continue to meet the occasional objection put forward by purchasers that lake freights are uncertain by making liberal offers of large quantities at the mines. We hear of the purchase by one furnace of 180,000 tons of Ore at the mine

Pig Iron.-Scarcity of Coke has unsetknown quantity. Mill Iron is scarce, and

ing mill manager returns our written re- for cash in round lots as below : during the past week. Inquiries are noted quest for information indorsed: "If the demand for Iron continues prices must go considerably higher. We have no Coke, and can get none for a week. Other rolling mills are in the same trouble. We are book ing no orders except at advances on present quotations.

Old Rails .- The demand is still very heavy, and \$27.50 is not too high a quotation. For a 500-ton lot \$28 were paid during the past week. Old Wheels are in fair demand at \$19 % ton.

The firm of Dalliba, Hussey & Co. has been formed at Cleveland, composed of J. H. Dalliba, Horace P. Hussey and Moore, Benjamin & Co., of Milwaukee. The firm will represent the Iron mines of the latter company and a number of other producers of Iron Ore. Its offices are Arcade Building, St. Clair street, Cleveland.

Cincinnati.

CINCINNATI, December 27, 1886.

Pig Iron.-The efforts of the furnaces to allay the excitement which is evident among consumers of Pig Iron, and to extinguish the demand by advancing prices, has thus far been unavailing. The past week has witnessed a scramble for Iron, and the many refusals of producers have apparently only stimulated the demand, while prices have further risen. No. 2 Foundry has been sold at \$20, and No. 1 Mill at \$19. Sales have not been large, of course, as few producers have been willing to book orders even at the higher prices. Most of the Northern (as well as Southern) stocks have continued to take orders until they have found themselves actually embarrassed by contingencies not calculated upon or in imminent danger of being so. The facts as set forth which restrain furnaces from taking more orders besides their oversold conditions are the uncertainty con cerning transportation rates and the difficulties which attend the procuring of Coke and Ore in some districts. In the mean time mills and foundries are discontented and continue their efforts to provide for the future. That they will continue their importunities until Foreign Iron is brought in is a question for the future, but it seems probable. There have been several lots of 500 to 600 tons of both Mill and Foundry Iron recently sold for immediate delivery, from speculative holdings, but this supply is now reported low since 2000 tons only being now available. One lot of 1000 tons Old Wheels have been sold at \$18.50 \$7 ton. Miscellaneous,-Judging from the efforts The prices for Pig Iron now current here for cash are about as follows:

Charcoal Foundry. Hanging Rock, No. 1. Hanging Rock, No. 3 Southern No. 1 Southern No. 2 \$22,00 @ \$24,00 21,00 @ 22,00 22,00 @ 21,00 21,00 @ 22,00 Coal and Coke Foundry. Ohio Soft Stonecoal, No. 1.
Ohio Soft Stonecoal, No. 2.
Southern Coke, No. 2.
Southern Coke, No. 2.
Southern Coke, No. 2.
Southern Coke, No. 3.
Jhio and West Pennsylvania Coke, No. 1.
Ohio and West Pennsylvania Coke, No. 2. 20.00 @ 20.50 Forge. 18.00 @ 19.00 17.00 @ 18.00 18.00 @ 18.50 outhern Coke ... Car-Wheel and Malleable Irons. Southern Car-Wheel. Hanging Rock, Cold Blast... Hanging Rock, Warm Blast.. Lake Superior and Malleable 25.00 @ 26.00 27 00 @ 28.00 23.00 @ 24.00 25.00 @ 26.00

Manufactured iron .- The market for to strengthen the statement made last week, Manufactured Bar and Structural Iron has viz.: That an enormous quantity of Ore is continued firm and the demand active at being sold to be delivered when navigation previous prices. We quote: Bar Iron, 1.95¢ @ 2¢; Charcoal Bar Iron, 2.95¢ @ 3¢; Sheet Iron, Boiled, Nos. 10 to 27, 2.35¢ @ 3¢; Sheet

> upon \$25 50 @ \$26 for Rails and \$18.50 for Wheels, cash, at Cincinnati.

Nails .- There has been a fair trade and a firm tone has prevailed. 10d. @ 60d. sell at \$2.30 @ \$2.40 \$ keg for Iron and \$2.40 @ \$2.50 for Steel; other sizes at proportionate

Louisville.

LOUISVILLE. KY., December 27, 1886.

Pig Iron.-The market continues strong, and the majority of Southern Coke Furnaces made another advance in their limits. with every prospect of realizing the outside figures. It is very difficult to get orders booked for Coke Irons, either for present or future delivery. Some odd lots of irregular grades, which accumulate at the furnace from week to week are offered, but on regular grades there is very little offering, and furnaces generally are far behind their shipping obligations. Many large consum ers, who supposed they had provided for their wants for many months to come, have found their trade so much larger than they expected, that their purchases have not been adequate to their needs, and in Pig Iron.—Scarcity of Coke has unsettled, though not weakened, the market. The limit of the upward tendency is an unmany cases have found it difficult to get of the year are fairly quotable as follows: consequence they have come into the market what they need. Some large lots of Carprices are advanced. Sales are made on a Wheel Irons, owned by speculators that basis of \$19.50 cash at furnace. No. I have been on the market some weeks have Bessemer Iron has been sold during the been sold, and although quotations for this week for \$21.20 cash at furnace. For No. 1 class of iron are not advanced, yet there is basis is a problem which gives a great deal of concern to those engaged in manufacture reported at \$19. There is considerable age quotation by dealers. Charcoal Irons early advance. The greatest demand, how-

which cannot be supplied. Holders of of a fair quantity at \$22.80. Sellers are \$1 \$2 ton higher, but are much more scarce careful to quote prices at furnace. A roll- than they have been for months. We quote

,	Southern Coke, No. 1 Foundry				
	" No. 2 "	19.50	60	20,00	
	No. 216 "	19,00			
П	Hanging Rock Coke, No. 1 Foun-		ep.		
	dry	20.00	0	21.00	
	Hanging Rock Charcoal, No. 1		49	~	
	Foundry	22.00	0	23.00	
	Southern Charcoal, No. 1 Foundry	21.00	0	22,00	
1	Silver Gray, different grades	18.00	(a)	19.50	
- 1	Southern Coke No 1 Will Noutral	18.50	a.	19 00	
.	No. 2 " No. 1 " Cold Short	18.00	0	18,50	
	" No. 1 " Cold Short	18.00	(B)	18.50	
	" Charcoal, No. 1 Mill	19.00	0	20.00	
. 1	White and Mottled, different grades	16.00	m	17.00	
	Southern Car-Wheel, standard		10.00	22100	
	brands	26.00	m.	27.00	
1	Southern Car-Wheel, other brands	28.00			
	Hanging Rock Cold-Pleat	28,00		80.00	
	Warm-Blast	21.00		22.00	
	or m. Didse.,	41.00	40	EE. (N)	

Old Material. - The market has been very nuch more quiet this week than last. There is still more demand for Old Rails than any other class of Scrap, but the demand for this has fallen off a mewhat. Prices for all classes remain the same as quoted last week. There is also very little, if anything, offering. We quote for cash in round lots as

	below:	
	Rails. W ton \$24.50 @	\$25.50
1	Wheels, \$\mathfrak{1}{2}\$ ton	*****
	No. 1 RailroadWrought, # 100 1.10 @	
	No. 1 Country Wrought, # 100	1.00
1	No. 2 Country Wrought, \$\mathcal{H}\$ 10065 @	.75
ı	Boilers, cut, @ 100	.90
ı	Boilers, uncut, \$\mathbb{9}\ 100	.68
ı	Flues, Tanks and Sheets. @ 100 35 @	.40
1	Axles, # 100 1.25 @	1.80
1	No. of the latest and	

W. B. BELKNAP & Co., Louisville, report as follows, under date of December 27: The market maintains its strong tone, although the demand is necessarily light, as people's attention is turned toward enjoying to the fullest extent the festal season upon us. Christmas may have brought some disappointment to Wall street operators, but we fancy the manufacturers of Iron, both Pig and Bar, are falicitating themselves on a well-distended stocking this year.

Bar Iron.—Prices have been again advanced. The mills are saking at and the

vanced. The mills are asking 2¢ and the jobbing price has been advanced accordingly. The extraordinary strength of Bars is somewhat amusing when one remembers how few friends they had six months ago. A prominent Pittsburgh manufacturer in our office discussing the outlook delivered himself about as follows: "Yes, you may look for an advance in Steel, the Bessemer stock is scarce, there is a great demand for Steel Rails and associated product. I shall not be surprised to see the ordinary grades of Steel advance fully 25 %, but as for Bar Iron there is no speculation in that. It has been cut out of many uses, notably among the agricultural implement men, by cheap Steel, and will never be found in as great favor in the future as in the past." It is certainly the unexpected which happens. While Bar Iron has advanced about 1/2 ? B b or \$10 ?? ton, the cheaper grades of Steel have not advanced more than \$3 or \$4 ?? ten at the outside.

Band and Hoops-Are firm but the demand is light.

Sheet.—The low prices on Sheet have been

withdrawn quite generally. Those concerns which maintained low figures seem to have been comfortably filled up within a short time. In fact, the notion is gaining ground 19.50 © 20.50 18.50 © 19.00

20.00 © 31.00

19.50 © 30.00

18.50 © 19.00

18.50 © 19.00

18.50 © 19.00

18.50 © 19.00 21.00 @ 22.00 which may occur in the way of labor troubles, &c., which proved disastrous last year.

Nails-Are strong at recent advances. The Iron Nail men are following up the Steel Nails slowly, and extreme low prices which prevailed in the Eastern markets have been withdrawn. Stocks at the mills are said to be light.

Wire.—As January approaches, which is sure to bring a strong demand, Wire is undoubtedly gaining strength. Low prices of Plain Wire have been supplanted by ad-vances, and while Barb Wire in its pre-ent inactive state is doing itself little credit, at the same time it would seem inevitable that next year will see an improvement in prices, and if the long-promised pool is Iron, Charcoal, Nos. 15 to 25, 2½¢ @ 4¢ made up, of course there will be sharp and rapid advances. Buyers are at present

> Messrs. Hall, Boothers & Co. have an office at 305 West Main street, Louisville, for the purpose of conducting a general Pig Iron commission business. They have been appointed agents of a number of large producers in the South and West.

Detroit.

CHARLES HIMROD & Co., dealers in Fig Iron, Detroit, Mich., report, under date of December 27, as follows: In no particular has the market shown anything but advances in strength and prices. We learn of one or two operations in Pig Iron having recently taken place, showing this increased strength and desire on the part of the manufacturer to cover. December of this year is not unlike that of last, inasmach as the month is usually one of dullness, but both 1885 and 1886 have shown dealings right up to the close of the year, and we have no doubt that the coming week will not be an exception. The difference in price is slightly in favor of 1886, although all the way through soot of this mount of the widest differences on all grades of Iron. What was much talked of last year is scarcely spoken of this—namely, the anticipated labor troubles then, and users of Iron think the sconer they have the lower their prices will be they buy the lower their prices will be, and at the same time they are unwilling

Lake Superior Charcoal, all num-			
bers	\$22.00	3	\$23 00
Lake Superior Coke, All Ore	21,00	100	22,00
Lake Superior Coke, Cinder Mixed.	19.00	0	20,00
Standard Ohio Blackband	20.00	0	22.00
Southern No. 2	19.50	0	20.25
Southern Silvery	18.00	0	19.00
Jackson County, Ohio, Silvery	20,00		21.00
American Old fron Rails	26.60		
Old Wheels	20.50	0	21.50

Trade Report.

42; Canada Southern, 6334; Consolidated Gas, 78; Central Pacific, 421/8; Delaware, Lackawanna and Western, 135; Delaware and Hudson Canal, 101 7/8; Denver and Rio Grande preferred, 57¾; Erie, 33½; Lake Shore, 96; Long Island, 93; Michigan Cen-tral, 93½; Milwaukee, Lake Shore and Western preferred, 9834; Missouri Pacific, 10614 New York Central, 11334; New York Sus quehanna and Western, 12; New Jersey Central, 54%; Norfolk and Western pre-ferred, 48%; Northwest, 113%; Northern Pacific preferred, 601/2; Oregon Navigation, 101; Oregon Transcontinental, 323/8; Pacific Mail, 4914; Reading, 351/8; Richmond and West Point, 35; St. Paul, 89¾; Tennessee Coal and Iron Company, 44½; Union Pacific, 60¾; Western Union, 70¾.

	Bid.	Asked.
. S. 3 per cents	101	and the same of
. S. 416, 1891, coupon	110%	11034
. S. 4s. '07, coupon	12916	12916
. S. Currency 6s, 1895	1245%	-
. S. Currency 6s, 1896	12716	_
. 8. Currency 6s, 1897	129%	relate
. 8 Currency 6s, 1898	181%	_
. S. Currency 6s, 1899	185	000

The Secretary of the Treasury on Tues day issued the 145th call for the redemption of bonds. The call is for \$10,000,000 of the 3% loan of 1882. Principal and accrued interest of the bonds designated will be paid at the Treasury, in Washington, February The three months' interest due February I will be paid, with the principal, to the holders at the time of presentation. Parties holding bonds called by this circular can obtain immediate payment, with interest to date of presentation, by requesting the same in the letter forwarding the bonds for redemption. The weekly bank statement, covering only five business days, was more favorable than could have been expected there being a gain of \$3,224,000 in surplus reserve, which now stands at \$7,232,205 The actual position was better than these figures indicate, the Treasury disbursements and heavy gold importations not being fully apparent. In loans there was a contraction of \$5,209,000. Over \$6,500,000 of foreign gold have arrived this week and large amounts are in transitu, from which circumstance and Treasury disbursements on account of January interest, money is very easy. The annual settlements are not likely to disturb the market. The Bank of England rate remains at 5 %. Although the Bank of France a few days ago, decided to part with no more gold for the present, the outflow continues, to the extent of 22,000,000 francs worth since Monday. The Paris correspondent of the London Statist, says: "Clearly the only way to keep gold in France, or to check exportation of it to Germany, is to raise the rate of discount.' According to the Custom-House reports the exports of specie from this port during the week were \$183,000, making a total since January 1 of \$47,073,000 as compared with \$23,849,000 for the same time last year. The imports amounted to \$2,538,936, making a total since January I of \$35,777,214, against \$17,473,000 for the same time last year, and \$31,665,736 in 1884.

The bank clearances in 32 cities last week were \$894,838,060, against \$879,426,-230 for the corresponding week last yearan increase of 1.8 %. Outside of New York the clearances were \$289,569,533, against \$242,695,078 in 1885—an increase of 19.3 %. New York shows a falling off of 5.1 %. The number of business failures reported is 263 for the United States and Canada against 288 for the previous week. South and West the number is below the average, and in New York failures are unimportant,

The imports of merchandise at this port during the week were \$500,000 above those of the previous week, the valuation being \$7,562,684, making a total since January I of \$425.337,508, against \$387,077, 577 last year and \$416,513,031 in 1884. The exports were \$1,726,000 less than last week, the valuation being only \$4,672,165, making a total since January 1 of \$320, 151,352, against \$327,943,780 last year, and \$327,069,214 in 1884. The items include 107,204 barrels flour, 495,770 bushels wheat, 303,241 bushels corn, 14,908 bales cotton, meats, 4,046,941 lb lard.

East-bound freights from Chicago last week were larger than before for a year, amounting to 63,133 tons, shippers seeking to take advantge of cut rates, grain and provisions being transported on the 25¢ basis likely. regardless of the recent so-called advance. Despite this seeming demoralization railroad earnings present a favorable exhibit.

Statistics printed in Baltimore show that the amount of capital stock of incorporated companies represented in new manufacturing and mining enterprises organized or chartered in the Southern States during the past year aggregates \$129,226,000, against \$68,812,000 for the year 1885.

The deposits of the Massachusetts savings banks now reach the large amount of \$291,-197,900, or in round numbers \$300,000,000. The number of open accounts has increased during the year 6.7 %.

The Benwood Iron Works, of Wheeling, W. Va., started up the pudding department of their works last week, and will make with the Winchester 22 Repeating Rifle, as muck iron for the Pittsburgh market.

General Hardware.

There have been few changes in price since our last review of the market, which s characterized by a firm tone, with an upward tendency in some lines which have been very low and have not yet been advanced. In Heavy Hardware the large trade have been buying with some freedom, as well as in certain other lines which are regarded as safe purchases. Cheerful expressions in regard to the outlook of business are general, and the year draws to a close with an exceptionally hopeful feeling.

NAILS. The New York market is moderately active, and is steady at the recent advance to \$2.15 for carload lots on dock for Iron Nails. Buyers show no disposition whatever to anticipate future requirements. Raw materials have developed a further upward movement.

BARB WIRE.

The market is fairly active, with a considerable number of inquiries coming forward for January delivery, for which Galvanized Four-Point Barb Wire is selling at 4 cents for carlord lots. February and March de-liveries are placed with difficulty. For 3-ton lots we quote 41/4 cents and for 1-ton lots and less 43% cents, delivered.

MISCELLANEOUS PRICES.

The price of Painted Wire Cloth is referred to as very firm and regularly maintained, with some prospect of an advance if the present tendency of the Wire market con

No further announcement with reference to prices has been made by the manufact. urers of Locks, but the market is unquestion ably firmer than it has been, and the opinion is freely expressed that higher prices will probably be agreed upon. The form which this action will take will depend upon the success of negotiations which are now in progress. In the meantime the manufacturers are withdrawing their extreme quota tions, and are manifesting conservatism in accepting orders for future delivery.

No changes in the prices of Ammunition are anticipated, and it is expected that the present arrangement among the manufacturers under the efficient direction of Charles Taylor, the commissioner, will be continued. The regularity which has thus been given to prices of a line of goods which of late was so seriously demoralized, is regarded by the trade with much satisfaction.

The agreement among the manufacturers in regard to Bright Wire Goods is fairly well maintained, especially with reference to the limit beyond which goods are not to be sold, but it is intimated that some smaller orders are given better discounts than they are strictly entitled to.

No change has yet been made in the price of Brass Kettles, but on account of the large advance in Copper and the satisfactory arrangement that exists among all the manufacturers, it is thought not improbable that higher quotations will soon be announced. The manufacturers are reluctant to accept orders for future delivery on the same terms as they would a month or two ago.

The association among the Scythe manu facturs is still in nominal existence, but its prices are too generally disregarded. Orders are being placed on terms very nearly as low as before the organization of the as sociation

The prices of Scythe Snaths are also irregular, and an animated competition exists, which may be accounted for in part by a desire to induce a renewal of the agreement among the manufacturers, but whether it will have this effect remains to be seen.

Most of the manufacturers of Steel Goods have booked nearly all the orders they desire, and the opinion is freely expressed that it is probable there will be something of scarcity of these goods before the season is over. Notwithstanding this impression prices remain without change, figures which have recently prevailed being still obtainable. Some of the manufacturers who are especially well supplied with orders have made slight advances.

Sisal Rope has not yet moved upward, but is held very firmly at its present figure, with the certainty of an advance if there should of its arrangement, is indicated by the con-5,192,514 gallons petroleum, 437,825 lb cut be only a slight increase in the value of the

> Slightly advanced prices are named for Thimble Skeins, and the market is characterized by a decidedly firmer tone. Definite advances in the near future are not un-

> A firmer feeling prevails in Wrought-Iron goods, and some of the manufacturers express themselves as looking for advanced prices, especially in view of the increased cost of Iron.

The following are revised prices of the Raub Magazine Target Trap, which is manufactured by Joseph L. Raub, New London, Conn., the list prices being subject to a discount of 20 per cent.:

Traps, with outfit complete, good for 10,000 shots. Traps, without outfit Practice Targets, per 1000 (500 in box)...

Clay Targets for stage use (500 in box) are sold at \$5 per 1000, subject to a discount of 10 per cent. These outlits are described as particularly adapted to snap shooting from face of invoice will be deducted for the shooter handles his own Trap and can

throw the 25 Targets contained in the Trap in, it is claimed, 5 seconds. The outfit weighs about 23 pounds, the Trap alone 7 pounds and a box of the Clay Targets 45 pounds.

There has been of late a noticeable improvement in the Axle trade, especially in the volume of business transacted. Prices are, however, referred to as not having sufficiently responded to the increased cost of the raw material, but it is intimated that the prospects are good for an early improvement in this respect.

The Nason Mfg. Company, 71 Beekman street, New York, issue, under date Decemper 20, a sheet of discounts applying to their illustrated catalogue of last April. It is of more than usual interest, as giving the revised prices which have recently been made on many of the goods.

ITEMS.

The following card to the trade from the well-known and highly esteemed house of Alfred Field & Co., relates to certain charges which have been given publicity in regard to alleged undervaluations in their importations of Cutlery :

In the New York Tribune of December 15 there were published certain statements concerning myself and my firm, the effect of which was to discredit the probity of my firm in their dealings with the Government. To those who know us well I do not consider any notice of this attack necessary, but I desire to say to those who are not well acquainted with my house that I hereby challenge the Government, or anybody else who have had dealings with my house for the past 50 years, to put their finger on a single instance where either myself personally or my firm have done a discreditable act.

A. H. Saxton,

of Alfred Field & Co. NEW YORK, December 28.

The trade will receive with pleasure the announcement that the A. F. Shapleigh & Cantwell Hardware Company will continue as before their late catastrophe, and have secured the marble-front stores, Nos. 519 and 521 North Main street, St. Louis. It is understood that they are buying freely, and with the facilities which are at their disposition are in a position to transact business promptly. The question as to whether or not they will receive the insurance on their stock, in whole or in part, is one which is regarded with interest by the trade, and probably involves some delicate legal questions. The following clause generally contained in fire insurance policies is referred to as having a direct bearing on the case: If a building shall fall except as the result of a fire, all insurance by this company on it or its contents shall immediately cease and determine." In some policies are added the words: "Or by the falling of a building or any part thereof." The St. Louis Republican says it is thought that none of the property was damaged by fire until after a portio of the building fell, and that as soon as the full occurred the policies became void. Others declare that as the firm occupied five stores, and only one of them fell, the insurance on the other four holds good. To meet this, it is asserted that all the stores, masmuch as they were connected by doorways, were really considered as one building, and insured as such; that therefore, the fall of one building was practically a fall of a portion of the building insured, and hence all the policies were invalidated. It is stated that the firm have signed an agreement that an inveatigation by the companies as to the amount of the loss shall not be taken to be a waiver of any rights on their part. The five stores are said to have been rated as one

W. H. Smith Hardware Company, Parkersburgh, W. Va., are distributing among their customers an imposing illustrated and descriptive price list describing the line of goods they handle. It is a large, well printed issue a very tasty and convenient pocket and fully illustrated volume of 800 pages, and memorandum book, calling attention incicovers an extensive variety of goods ranging from Agricultural Implements to Fishing Tackle and Sporting Goods. It is well arranged, giving list prices, and, where necessary, descriptive matter relating to the goods, and will be found especially satisfactory as adapted to the wants of the trade in West Virginia, Southern Ohio and favorable mention of Sap Spouts and Buck-Northwestern Kentucky. The range of the goods included in it, as well as the method tents, as follows : Agricultural implements : mills and mill supplies; mechanical tools of all kinds; blacksmith and carriage makers goods; saddles, saddlery, chains, &c.; cabinet and pad locks; door locks and builders' hardware; coffin hardware and tacks; shoe findings; builders' material, mantels, &c.; fire irons, coal vases, &c. stoves, stove hollow-ware and trimmings tinners' tools, trimmings, tin plate, &c.; pieced, stamped, planished and japanned tinwares, brass and copper goods; granite iron-ware; electro allver-plated hollowware; clocks and house-furnishing goods; wire goods; cordage, tackle blocks, wooden ware, baskets, scales, show cases, and grocers' supplies; brushes; stationers' goods and supplies; shears, pocket and table cutlery; fishing tackle, guns and sporting . \$6.00 cutler 4.00 goods.

The following business-like statement is made under the heading "Credit Department," terms being announced as 60 days: No discount .- After 10 days.

Prices.-Orders filled at rates current on day of shipment. Interest will be charged on past due

ecounts. Packages.-Reasonable charges will be

made for packages and drayage.

Time.—If not paid within 60 days from date of shipment, we will draw at sight with exchange or express charges for full amount

Orders from parties with whom we are unacquainted must be accompanied with the cash or satisfactory city reference. A failure to comply with this request will necessitate a delay sufficient for investigation and correspondence. A promise to remit or pay draft on arrival of bill of goods is not sufficient, and must be regarded the same as though credit on our regular terms were requested.

Accounts.-Accounts will only be opened with those actually engaged in mercantile

business and carrying stock.

No Goods sent C. O. D.

Reclamations.—Claims for goods short or imperfect must be reported within 10 days from receipt, and will be promptly adjusted. But in no case must the payments of our drafts be withheld on account of any errors not so reported, as we hold ourselves per-sonally responsible for mistakes of our own, and will as cheerfully correct them after payment as before.

Insurance.—No goods insured by us with-out special instructions to do so accompany-

ing each and every order.

Responsibility.—Our responsibility ceases with the delivery of the goods to the carrier in good order and transmitting receipt therefore to consignee. For all damages sus tained by breakage, shortage, delay, &c., the law holds that the carrier alone is responsible to the consignee. We will cheerfully render every assistance in our power to trace and recover lost goods and collect damages, but in no instance will the payment of our bills be subject to the arrival or non-arrival of goods at their place of destination.

Failures.-Statistics show that a large proportion of the failures throughout the country are fraudulent, frequently induced by the readiness with which merchants accept compromises. To avoid un-friendly criticism, we hereby give notice that we have not for years, and will not compromise.

This volume, which will doubtless be appreciated by those who receive it, will be regarded by the trade as an evidence of the enterprise of the house that issues it.

Lindsay & McCutcheon, Allegheny City, Pa., for whom J. C. McCarty & Co. are agents, 97 Chambers street, New York, issue a list devoted to their Strap and Tee-Hinges, of which an assortment are illus-

The Winchester Repeating Arms Company, New Haven, Conn., issue a striking calendar for the coming year, in which prominent mention is called to their manufactures, with a special reference to their prominent

Bates, Wilson & Co., 80 Chambers street, New York, sole agents for the Snell Mfg. Company, Fiskdale, Mass., issue a new circular describing their Snell's Auger Bits in fancy wooden cases, and referring also to their Ship Augers and Ship Auger Bits.

T. S Casey & Co., 115 Dearborn street, Chicago, Ill., announce in circular December 15 that after the 1st of January they intend to take a new departure, and while continuing to handle the Nails of the Riverside Iron Works as here:ofore they will add other brands, and will also represent the Wheeling Hinge Company, Caldwell & Peterson, Ewing & Bill Lantern Company, Star Iron Works and the Norway Tack Company, also leading brands of Hoop and Bar Iron and Wire Nails.

Yerkes & Plumb, Philadelphia, issue a convenient calendar of new design, which will serve the convenience of the trade, and incidentally calls attention to their line of Hatchets, Hammers, &c., of which illustra tions are given.

Wood, Smith & Co., Fort Plain, N. Y .. dentally to their manufactures, and giving some tables of sizes, weights, &c., of Axes, rendering it convenient for reference.

The Vermont Agricultural Report of the State Board of Agriculture for the year 1885 to 1886 in an article relating to the maple sugar industry contains illustrations and ets manufactured by C. C. Post, of Burlington. Vt., and illustrated in his advertisement on page 10' The special features of these articles, with which the trade is familiar, are alluded to, and the resulting advantages. It is stated that over 10,000,000 of these Sap Spouts have been sold, and they obtained the first premium at the Vermont State Fair the present year.

Weir & Wilson have opened an office at 14 West German street, Baltimore, where they will act as the direct representatives of Hardware manufacturers. The firm is composed of Chas. H. Weir and John K.

It is announced, December 17, that W. H. Brock retires from the firm of J. H. Williams & Co., 9-15 Richards street, Brooklyn. James H. Williams states that hereafter the business will be conducted by him under the name of J. H. Williams & Co., as hereto-

The William Cabble Wire Mfg. Company, 43 Fulton street, New York, issue a calendar for the coming year, the vacant spaces in for the coming year, the vacant spaces in the monthly sheets being utilized in calling attention to their manufactures and their facilities for furnishing and making goods in their line.

We are advised that Walter L. Spitz has severed his connection with Newlin, Knight & Co., and will travel next year for the Lloyd & Supplee Hardware Company, Phila-

The Chadborn & Coldwell Mfg. Company, Newburgh, N. Y., issue the fourth number of "The Lawn," under date January 1, 1887. It contains as usual a description of their Hand and Horse Lawn Mowers, with information in regard to lawns, and items relating to Lawn Mowers, which are of interest.

By a partial reorganization we undertand that J. C. McCarty & Co., 97 Chambers street, New York, have become interested in the corporation of W. A. Ives & Co., New Haven, Conn., and have been appointed agents for the sale of the goods of the company in this city and the country generally. This arrangement has been made, it is intimated, for the purpose of relieving the president. William A. Ives, of some of the burdens incident to the management of the large ousiness of manufacturing and selling the goods of the company. This arrangement is regarded by the trade as one likely to serve the interests of those concerned in it, and there can be little doubt that J. C. McCarty & Co., with their wide acquaintance and facilities for marketing goods, will succeed in keeping this important line prominently before the trade.

WHAT THE TRADE SAY.

The following letter has been received in reply to the communication which was published in our last issue, relating to the payment of accounts by local bank checks uncurrent in the markets where the goods were purchased. While our readers will observe that our correspondent has missed the point of the letter in question, we take pleasure in giving his communication:

Your correspondent "Prosperity" in the issue of the 23d inst., we should judge, was deeply interested in some bank where he is located, as he wants all bills due him paid in bank checks or drafts. I wonder if this same Hardware man pays all the bills he contracts by private checks, or does he go to the bank every time he desires to pay a small bill and get a bank check or draft. I doubt not that in 19 cases out of 20 he will pay the bills with a private check, unless he is an officer in some bank, when it would be to his interest to pay with drafts, as he could probably get them for nothing, and perhaps have them enclosed in a bank stamped envelope, thereby saving postage. Now, as to private checks in payment of bills, I, for one, consider my check as good as any bank-check, as at the time the check is drawn the money is in the bank to meet it, and the one in whose favor the check is drawn is fully as safe as he would be with a bank-check or draft, as the drawer is holding for the amount until paid. I claim also that it costs no more to collect my check than it does to collect a bank-check. If the banks where "Prosperity" is located refuse to collect checks for him, would it not be a good collect checks for him, would it not be a good plan to interest himself and organise a bank that will. There is another thing in regard to private checks. They are receipts for the amount paid without going to a third party, and are important to many dealers, as when the checks are paid and returned to first hands they are pasted to the stubs from which they were taken I. I think that you which they were taken. I think that your correspondent will acknowledge this to be a convenient way to have them for reference.
I have been in the Hardware business for some time, and I do not now remember of paying a bill in any other way than by private check, and the only complaint I have received in regard to such payments was within a month, and that was from a party in Ohio who claimed that Pennsylvania was the only State where this practice prevailed. This assertion, however, I undertake to deny, as I am well aware that business men I undertake to of New York and all other large cities pay their bills with private checks.

ONE WHO PAYS HIS BILLS WITH PRIVATE CHECKS AND DOES NOT CONSIDER HIMSELF A PETTY SWINDLER BY SO DOING

The following letter from Indiana, touches on the condition of trade :

Every one is taken up with Christmas are bent on having a good time. Traveling men are at home waiting to see how their profits figure up, on which depends their position for the coming year. The whole-sale houses are presumably anxious to know how their year's business is coming out. One cry goes up from all, from the mechanic and contractor to the largest wholesale dealer in the country: "If every one would square up the business of the past year and pay in full up to December 31, 1885, 11 p. m." then all could begin a new year with balanced accounts. With the compliments of the season, &c.

Dudley Bros. & Lipscomb, Nashville, Tenn., write us as follows under date December 25:

Trade for the past week has been characterized by the usual holiday dullness, thus affording merchants an opportunity to straighten up stock and get things in readiness for the winter and spring business, which usually opens up in Nashville about the middle of January. Prices generally are firm, and advances well sustained. The panic in stocks has not seemingly affected the Hardware market. The low price at which tobacco has opened this season causes collections to be slow in a district where our usually promptest paying customers reside. Paschall & Fall have removed from their old quarters to the opposite side of Market atreet. The Bransford Hardware Company have also removed to Market street, in the same building with the Rock City Saddlery Company, of which Mr. Bransford is president. The two concerns will probably be consolidated. All the trade sympathize

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The following letter, which relates especially to trade as seen from the St. Louis standpoint, will be read with interest:

Every one seems well satisfied with the ast year's business, while a few complain that the volume did not throw off the expected profit, having done more in the year 1886 than any previous year. The extraordinary cedented growth of Minneapolis St. Paul, Wichita and Kansas City have all been a great aid to St. Louis prosperity, and as one of our largest shippers re-marked, "They can do all the hollering; marked. "They can do all the hollering; we quietly make our dollar and say nothing." Such is St. Louis, and when St. Louis prospers in the Hardware trade no one else has a right to complain, as it is the distributing point.

With reference to the possible adoption by the Stove manufacturers of a method of selling Stoves by which the trade would be to a greater or less extent ignored, a correspondent says :

The manufacturers of a great many different goods are killing trade for the regular merchants. Hardware dealers used to han-dle Mowing Machines until the manufacturers began making agents of farmers, and, in fact, any one that would handle their goods, and the result is that now there is hardly a Hardware house in this section that will handle a Mowing Machine at all. When the farmers want repairs for the ma-chines they have to go and see the agent and have him order them, waiting until they are received, no matter how much they may be needed for immediate use. Perhaps in the meantime the agent has discontinued the sale of the machine, and the purchaser is put to much inconvenience.

Referring to the matter of interference with the trade of retailers by the jobbers, which was alluded to in a recent letter from Florida, a Hardwareman in Illinois writes as follows!

When I read the correspondence from Florida it brought to my mind some actions of jobbers and manufacturers. Early in the spring there was some cut in prices of Barb Wire at retail. The jobbers in this vicinity sold it in any quantity to the consumer at 5 cents per pound, adding Staples free, and if the consumer desired it was de-livered at the depot without extra charge. At the same time they ask the retailer 5 cents at their store without Staples! The same thing is done with Nails. A consumer can buy a keg at the same price as the dealer can buy half a ton. A party from here went to the nearest foundry, and bought a Coal Heater at the same discount as the trade received, and drayed free. After this was known here another party went to the same foundry, and bought a Coal Heater for himself and one for his neighbor. The manufacturer may claim that I do not trade with him, but can a dealer trade with any foundry to avoid this? Would not the manufacturer have sold the Stove had I traded with him? I believe such houses ought to be made known by the trade and avoided.

A Hardwareman in Pennsylvania writes as follows in regard to Tacks

We do not now receive, and have not for some time had, Carpet Tacks of full weight. We have never bought direct from the manu facturer, and have repeatedly asked whole sale dealers when quoting prices if the goods would hold out in weight, and their usual answer was that they did not knew, and the result has been that, as we buy of different concerns, we get different weights. We think short weight is very general, and have weighed several packages and compared the weights with those given in The Iron Age, and find that we are short from 2 to 3 ounces in the dozen packages. We would call attention to another practice which gives less satisfaction than short weights; though it is not so dishonest, still it causes more complaint. Many manufacturers in putting up Tacks make the packages much too large. They are, in fact, too large for full weight, and when short weight is put in they are about half full. Customers examine them and get the impression that they are cheated, because of the comparatively small quantity of Tacks in the paper. This is an every day occurrence in the Tack is an every day occurrence in the T season, and it is annoying to the dealer.

A collection of Chinese Tools has been made by the British Charge d'Affaires at Pekin, and sent by him to to the Foreign Office authorities at London, by whom the articles have been transmitted to Birmingham, and, where duplicates existed, to Sheffield. The following description of the Tools will be of interest :

The case of Chinese Tools and Implements sent by the Foreign Office for the inspection of manufacturers in Birmingham comprises two distinct collections-one from Shanghai and the other from Tientsin. The specimens are all in a very rusty state, owing to the imperfect manner in which they were packed, and the labels are so stained and disfigured in many cases as to be scarcely decipherable. The Tools are all of exceedingly light construction and primitive shape hand-forged in a very rough and amateurish manner, but it is impossible without analysis to form any judgment as to the quality of the metal, which is fearfully corroded. The following is a list of the articles, with the prices marked in cents, which may reckoned at a fraction over 1/2d. English, but there is nothing to show whether these prices are wholesale or retail:

From Shanghai: A shovel shaped Spade Blade, fairly made, 62 cents; a Trowel, with wooden handle, very rough, 6 cents; a small Sickle, 25 cents; two hoe-shaped Picks, the larger 68 cents and the smaller 32 cents; a four-pronged Hoe, 68 cents;
Hoe, with curved blade, 27 cents; two
Hatchet Heads, one 47 cents, the other 32
cents. From Tientsin there are the followfollowing manner: A solution of chloride ing articles: A Plow Coulter, 9 cents; a of magnesium is used. This is of the square Spade Blade, thin and roughly strength of about 16° Beaumé. On passing

o cents and 8½ cents; a medium-sized Pick, 20½ cents; a large Road Pick Head of English form, but very rough, 82 cents.

The three Razors from Tientsin are ground straight down, like a "Rattler" Razor, which was the precursor of the "hollow-ground;" they are "fetched out" well under the back, being hammered out of the steel, and tapering a little at the end to form the tang. The blade is hammered well out leaving a travelous to the their well out, leaving a strong back, the thickness of which up to the back is not more than that of an ordinary dessert-knife. The blade is about 1½ inches at its broadest part. The handle is a bit of a twig, just as part. The handle is a bit of a twig, just as it is cut off the tree, with a piece of tin round one end to form a ferrule, in which the blade is riveted. In the handle is cut a shallow groove which receives the blade when not in use. The handle is very like a small haft pipe, such as a grinder uses in grinding desk knives. The Rezors are priced at 8, 8½ and 9½ cents—from 4d. to 4¾d.—at which it should be easy, provided there are no prohibitive duties at the other side, to put much better articles of similar side, to put much better articles of similar pattern in the hands of the Chinese. It looks an unlikely article to shave with, but if the Celestials prefer that very terrestrial looking tool for smoothing their chins there is no reason why they should be disappointed A Pick, also obtained from Tientsin, is

marked 68 cents (2/10). Unlike our curved style, it is almost straight, and about 3 inches broad all the way. The body is of iron, a piece of good hard steel being inserted in the middle and welded on to form the striking edge.

The "eye" is peculiar in formation—not unlike a horseshoe, but square at one end.

A smaller Pick, also from Tientsin, sold at 26 cents (1/1), consists of two thin layers of iron, with a layer of steel in the center, and a piece of iron welded on to form the eye.

Such articles as these could not be easily. Such articles as these could not be easily cast in run steel. A Hoe, at 27 cents (1, 1½), is made out of a piece of steel, with the eye welded on, as in the case of the Picks; the edge seems made from a better quality of steel. There are two Hatchets, both roi in finish, but light and well shaped. from Tientsin, which serves the purpose both of Hatchet and Hammer, is marked 20½ cents (10¼d.); it has been hammered into the shape of a slater's Hatchet. It is made of solid steel. The other, from Shanghai, is marked 32 cents (1/4), and resembles a quarryman's Wedge; it does not appear to have undergone any grinding; about 1 inch of fairly good steel is welded on at the point. Why the Shanghai, Hatchet on at the point. Why the Shanghai Hatchet should be dearer than the other is hard to say, as the Tientsin article is the better, ex-

which appears to be the Sheffield of China.

A Plow Coulter from Tientsin is shape like a sharp-pointed Shovel, but with a much wider socket, namely, 4 inches by 2½ inches. It seems to be of good, hard steel, the excellence of which is no doubt largely due to being well hammered. It has been forged out of a bigger piece of steel, and then ham mered in a boss; three ribs run from the point of the socket to the end of the Spade. vidently with the intention of strengthening the whole. A Spade from Tientein, marked at 201/2 cents (101/4d.), is like an ordinary Garden Spade, with a common socket welled to it; the steel is poor. A couple of Trowels one from Tientsin and the other from Shangha -are placed together. The lientsin Trowel is square at the point, and tapers a little toward the tang, which is simply drawn out of one end of the steel and then put into a rude handle with a primitive iron ferrule. The Shanghai Trowel, which is 36 cents (1/6), though much smaller, is better fluished. It is of steel, hammered out and then bent to form the socket; the blade is 5 inches long and 2 inches broad. It bears no evidence of grinding, except a slight touch at the edge, the steel having simply been ham mered and the socket bent.

cept as to finish, of the two. Probably labor is dearer at Shanghai than at Tientsin

mered and the socket bent.

The shapely little article marked "Sickle from Shanghai, 23 cents" (11½d.), is more probably a Bill Hook for cropping hedges or pruning tea plants. It has been taken out of a piece of steel ¼ inch, and then hammered out to quite an edge in the center. The hook is nearly 3 inches wide. A Hoelbrudle and Blade from Tientsin marked 66 Handle and Blade from Tientsin, marked 66 cents, has been ham nered out of a piece of steel. The blade is II inches broad of steel. The blade is it inches broad by 8 in length; the handle is strength ened by a ring of iron "shrunk" at the "gripping" end. The price of this implement is 2/9. After a minute examination of these Tools the opinion of competent judges is that all these articles could be made in Sheffield of much better quality, and, in the absence of heavy duties, put upon the Chinese market at equally cheap prices as those marked upon them. No doubt the Chinee would soon prefer to shave himself with a comfortable Razor, and to turn up his "three acres" with an improved implement, but in the meantime if these are the pat-terns he prefers he ought to have them, leaving to time, the enterprise of Sheffield and Birmingham houses, and the good sense of the "Celestial" to rise to better articles which could be gradually shown to him, side by side with his own cumbersome and prim itive styles. It would be necessary, of course, that the goods were made in large quantities to make the trade profitable, as in many instances special tools and appliances would be required for their manufacture. The steel used in the goods, when tested with a file, seems good—the quality being largely due to the hammering—and the iron is generally superior. They are all made for utility, and no doubt bear well the strain Makers must take to which they are put. care to send out wares which are thoroughl reliable in the material, that the Chinese, if they take to the foreign productions, may find them quite as durable as the rude implements with which they have got along up

made, 20½ cents; a large square Hoe, with a current through, electrolysis taking place, movable iron handle, 66 cents; a Trowel, various chemical reactions occur, setting very rough, 12 cents; a Bill or Hutchet Head, 20½ cents; three Razors, at 8 cents, effectively bleach the fiber.

to this time.

Metal Market.

Copper .- Our market has been stagnant luring the week; at present no more than 1156¢ @ 1134¢ is bid for Lake Ingot, there being little disposition to do anything except, perhaps, to pick up cheap lots, by no means plentiful, while waiting for developments the next year has in store for us. Baltimore may be quoted nominally 10 1/2¢, and Arizona 11¢ @ 111/8¢. In consequence of the extreme depression in London in Copper, and the heavy settlements yet to be made there on the part of weak holders of Chili Bars, the market there is suffering under a demoralization which may prevent any improvement in the near future, both here and there. The import of American Copper into Liverpool and Swansea from January 1 to December 15 has been 12,985 tons, against 23,375 tons during the corresponding period of last year. Chili Bars have remained steady in London at £38. 17/6, but gave to £38. 15/ to-day, while Best Selected is cabled at £43.

Tin .- The market in New York is at a complete standstill, in part caused by the usually dull season at this time of the year, and partially by the heavy supplies that have come in during the holidays, of about 1000 tons, all arrived since our last report. Of this fully three-quarters are from London warehouses, all shipped during the first fortnight of the present month, and we understand something like 500 tons more are expected from that quarter. This fact has caused our holders to reduce their price nearer to the London equivalent, so as to stop further unnecessary supplies from that quarter. A small business has meanwhile been done at 22.10¢ on the spot, and at this figure we have sellers for spot, December and January delivery, 22¢ being the best price obtainable, and that only for a limited quantity. There is absolutely nothing doing in futures, the views of buyers and sellers being too wide apart. It now remains to be seen whether operators can afford to drag additional quantities from London at present prices if London is willing to part with the entire stock it holds. With a European war possibly in prospect at short notice, the operators alluded to ought to be able to get the said London stock at least 10% lower than the ruling value. We call spot at the close 22.10¢. London cables spot Straits £99. 17/6, and three months, £100. 15/. Tin Plates. - Some large works, representing together some 50 mills, are still shut down in Wales. Meanwhile our market has been very steady at the ensuing quotations for large lines, ordinary brands, per box : Charcoal Bright, \$4.75 @ \$5.371/2; do., Ternes, \$4.20 @ \$4.62½, and Coke Tin, \$4.30 @ \$4.50. Liverpool is very firm at \$4 30 @ \$4.50. 14/6 @ 17/6 Charcoal, and 13/3 @ 13/6

Lead .- There sold in a small way some oo tons Common Domestic Lead at \$4.30, at which figure the market closes flat, St. Louis quoting \$4 @ \$4.05. Soft Spanish is worth £13. 12/6 in London and English Pig £13.

Spelter and Zinc .- The market for Common Domestic Spelter has been moderately active and very firm at the enhanced price of \$4.55 @ \$4.60. Bertha Refined is unaltered, 8¢. In London Silesian Spelter ommands £14. 5/, a decline of 2/6, and in this city \$4.80 @ \$4.90. There has been a fair demand for Domestic Sheet Zinc at \$5.40 @ \$5.65.

Antimony .- Market advanced in London during the week from £20 to £34. The market here is very strong for that brand at 73/ bid, and Cooleson is worth 9c @ 9.100

Coal Market.

At a meeting of the Anthracite Coal managers in this city to-day, Nut Coal was advanced 20¢ P ton; other prices remain unchanged. Bituminous Coal is in demand at 3.25¢ @ 3.35¢ alongside in New York. There is no apparent progress in pool or

ganizations. The Coal trade in all departments is described as in good shape, with active consumption and prices at least fairly re munerative, the only drawback arising from lack of cars for transportation. Stocks are nowhere in excess; hence producers are able to insist upon very nearly circular prices, Stove perhaps alone excepted. The quantity of Coal consumed by manufacturers is significant respecting the state of our principal industries. In taking a retrospect of the year congratulations are indulged respecting the improvement noted in the last quarter, which will go far to compensate for losses, actual or alleged, in the previous months. The most notable event in the past week is the settlement of labor difficulties on the Reading road, which threatened short supplies of Coal. The trouble in the Connelsville Coke region was amicably arranged. With more profitable business considerable investments are being made in Coal lands in Pennsylvania in the Anthracite and Bituminous fields alike.

compared with 683.035 tons in the corresponding week last year. The total amount of Anthracite mined thus far in the year 1886 tons for the same period last year, an increase of 536,419 tons.

for the year to that date 2,440,766 tons, a de- delivery either. One of some size netted the corresponding period of 1885.

Imports.

The following were the Imports of Hardware, Iron, Steel and Metals into the Port of New York for the week ending December 29,

Hardware.

Hardware.

Barbour Bros. Co. Mach'y, pkgs., 93
Boker Hermann & Co. Mdech'y, pkgs., 93
Boker Hermann & Co. Mdech. Co. Holman, cks., 22
Coppel, Alex.
Irouware, cs., 18
Dingee, P. M. & Sons, Pes., 89
Field Alfred & Co. Mdse., cs., 9
Foley, E., Mach'y, case. 1
Folsom, H. and D. Arms, cs., 14
Gerdau, Otto, Mdse., cs., 302
Graef Cutlery Co. Cutlery, cs., 4 Bars For Anada, 3 cet Rails, 2072 Roiler tubes, 1594 Wire, bdls., 2502 Bolls., 1334 Girders, 150 Rods, bdls., 1343 Disks, 130 Wire rods, coils., 15,382 Tubes, 283 Abbott Jere & Co.
Cases, 23
Alexandre, F. & Co.
Chests of steel, 20
Baring & Co.
Billets, 698
Belcher & Parks,
Cases, 2
Casks, 3
Carcrio, W. A.
Wire, bdls, 21
Delamater, C. H. & Co.
Forging 4, cs. 8
Downing & F. & Co.
Slabs, 665
Farrels, J. M.
Rods, b.lls, 6310
Hayes, Alfred,
Wire rods, bdls, 4516
Packages, 1921
Rods, pkgs, 500
More, J. P. & Co.
Sliets, 289
Cases, 20
Naylor & Co.
Billets, 2592
Rods, bdls., 57,105
Ingots, 1055
Newton & Shipman,
Packages, 307
Cases, 3
Bundles, 32
Bundles, 32 Stoel. Mdse, cs., c
sstor A.
Cutlery, cs., 2
odey, J. & Co.
Mach'y, cs., 7
foore's Son, J. P.
Mdse, cs., 3
fewton & Shipman,
Files, cks., 2
schovelling, Daly
Gales,
Mdse., cs., 10
Sumner, C. P. & Co.
Mach'y, cs., 11
Taylor Thos.
Mdse, cs., 10
Vogt, S. H.
Mach'y, cs., 2
Ward, A. Ward, A.
Cutlery, cs., 11
Wiebusch & Hilger,
Mdse., cs., 20
Witte John G. & Bro. Cu lery, cs., 10 Ladles, cs., 2 ood, E. Mach'y, case, 1 Bars, 19 Order, Scrap, loads, 16 Rods, bdls., 127 Tires, 751 Bands, 296 Forgings, 10 686 Axle, 1 Bars, 20 Rails, 2155 Packages, 8 Order, Mach'y, pkgs, 9 cs., 13 pcs., 8 Iron. Alexandre & Co., F.
Bdls., 70
Bars. 110
Baring Bros. & Co.
Rivet wire, coils, 666
Bars, 6860
Coils, 1135
Rolled wire, bdls., 166
Wire rods, coils, 252
Rough wire, bdls., 5030
Bdls., 305
Bars, bdls., 491
Nail rods, bdls., 1687
Brown Bros. & Co.
Wire rods, coils, 252
Coddington T. B. & Co.
Sheets, bxs., 164
Ddls., 573
Irocker Bros. Packages, 8 Cylinders, 100 Rods, pkgs., 3250 Billets, 566 Billets. 566 Old railway ties, 900 Rings, bdls., 2 Rollers, 20 Cases, 2 Scrap, loads, 6 Metals. Bruce & Cook,
Tin plates, bxs., 946
Cahn. H H.
Tin pail, cs., 6
Milt. H. R. & Co.
Tin plates, bxs., 276
Gilfil'an, Wood & Co.
Tin, slabs, 487
Isaacs, Vought & Co.
Gas fire burners,
cks., 5
Phelps, Dodge & Co.
Tin plates, bxs., 2088
Black taggers, bxs.,
275
Pierse & Co. C. L. Bruce & Cook Crocker Bros., 164
bdbs, 573
Crocker Bros., 573
Fig. tons, 500
Greeley, A. A., & Co.
Galv. wire, coils, 88
Renderson Bros., Pig. tons, 78
slilenburg, N.
Bundles, 173
Bars, 6083
undburg, Ginet Black taggers, bxs., 275
Pierson & Co., C. L.
Sheeting, cs., 90
Phelps, Dodge & Co.
Tin plates, bxs., 1650
Shepard, Sidney, & Co.
Tin plates, bxs., 1073
Thompson, J. J.
Spelter, plates, 5209
Warren, J. M. & Co.
Tin plates, bxs., 421
Order, Bars, 6063 Lundburg, Gust. Bars, 1646 Naylor & Co. Rods, colls, 27,228 Old ralls, pcs., 1099 Stetson, Geo. W. Pig, tons, 100 Union Bridge Co., Mon-treal treal,
Girders, 7
Brackets, 32
Plates, bdls., 4
Bed plates, 24
Flange groups, 91
Williamson, Jas., & Co.
Pig, Cons, 100
Order. Order, Tin plates, bxs., 34,665 34,665 Tin ingots, 8763 Tin s'abs, 11,345 Quicksilver bottles, 400 Sheet copper, cs., 4 Spelter, plates, 7204 Black taggers, bxs., 180 erig, coms, too der. Pig, tons, 250 Spiegel, tons, 1014 Flat bars, 281 Old rails, 5909 Old rails, pcs, 5171 Old rails, tons, 248 Colls, 657 Old fish plates, 81, 300 Rings, bdls., 93 Hoop iron, bdls., 85 Copper, cs., 191 Tin, bbls., 5 Tin taggers, bxs., 10 Star antimony, cks., 200 Yel. metal, cs., 100 The imports of Cutlery, Hardware and

Metals at this port during the week ending December 24 were as follows:

December 24 were as follo	wa:		Hdw., cs	1212
	Quantity.	Value.	Brass gds, cs.	12
Anvils		\$990	Clocks, cs	4
Antimony		218	Mach'y, pkgs.	. 19
Brass goods		2,229	Mf. iron, pkgs	18
Bismuth		4,103	Nova Sca	otia.
Chains and anchors		89		
Clocks		8,746	Tinware, cs	
		8,048	Graniteware,	12
Copper		35,220	Contriduce	
Cutlery		3,946	Cartridges, cs	
Dutch metal		6,949	Tin plates, bxs	7
Guns		3,096	ridw cs	85
Hardware		15,270	Tin, pigs	GO
Iron, pig, tons		2,250	British West	I Inc
Iron, sheet, tons.		20,180	201111111111111111111111111111111111111	
Iron, spiegel, tons			Hdw., pkgs	18
Iron ore, tons		2.843	Ag.imp., phg:	5
Iron, other, tons	. 2,321	38,042	Mr. iron, pgs	13
Machinery	120	6,541	Tinware, case	1
Metal goods		22,042	Pumps, pkgs.	38
Nails		1,054 3,882	Cuba	
Needles		681		
Nickel			Sew.ma., case	126
Old metal		7.614	Cutlery, cs	125
P'atina		9,126		214
Percussion caps	4.00		Nails, cs	10
Plumbago		8,406	Hdw., pkgs	23
Regulus antimony		1,642	Tacks, cs	6
Saddlery	. 14	1,612	Mach'y, pkgs.	71
Steel		66,529	Iron tubes	185
Tip, bzs		229,998	Steel, cs	78
Tin, slabs, 2,268		54,686	A. guns, case.	1
Wire	1-6	11,891	Spikes, kegs.	8
Zinc, 10	13,779	4,628	Tinware, cs	6
Zinc oxide	800	2,490	Steel bars	88
			Clocks, cs	8
			Tin, pkgs	6
m: : 1			Chains, bxs	2
Birmingh	am.	1	Pumps, pkgs.	5
Dilliningi			Ag.tmp., pkgs	8
BIRMINGHAM, ALA., D	ecember, 27	. 1886.	Percussion	
			caps, case	1
The holiday trade has b	een rema	rkable,	Pig fron, pes.	50
not merely for its actual vo	lumo but	forthe	Nails, kegs	18
	idine, but		Harre	

Birmingham.

BIRMINGHAM, ALA., December, 27, 1886. The holiday trade has been remarkable, not merely for its actual volume, but for the fact that it has exceeded all calculations, and it can be said with very little exaggeration that the largest stocks of holiday merchandise have been entirely cleared out.

Pig Iron.-There seems to be no disposition at any of the furnaces to contract The total amount of Anthracite Coal sent Iron far ahead of production; at certain of to market for the week was 667,066 tons, them the most tentative inquiries from others than regular customers is apt to be turned away without so much as a counterinquiry as to possible prices. Of course, a is 31,494.110 tons, compared with 30,957,691 few contracts covering a good part of the new year may be expected during the next few weeks, but so far as can The shipments from the Cumberland Coal be ascertained none have been made yet. Works are to be supplemented with a v region for the week were 55,079 tons, and Not many sales have been made for early large rail mill.

crease of 268,677 tons as compared with \$15 for 1 Mill; another \$16 for 2 Foundry. In volume of inquiry and in actual prices the lower grades seem to be steadily closing up on Foundry Iron. The temporary shipping trouble noted last week has been relieved, but the chronic complaint of insufficient railroad cars still exists.

> Nails. - At \$2 65 for the Steel article laid down here, and \$2.40 for the Iron, Nails Bars for Canada, 3784 still tend upward.

> > Miscellaneous.-Probably several new enterprises of some importance may be announced next week. A material enlargement of one prosperous iron-working establishment is already very well assured.

Exports.

The following table presents the exports of Hardware, Iron, Steel, Metals, &c., from the port of New York, for the week ending December 28, 1886 :

	Hamburg		Firearms, ese	1 311
	Mach'y, pkgs. 15	\$1.107	Ag.imp., pk28	1 18
	Wheel tires 4	1 0	Tacks, es Cutlery, pkgs	
	Metal goods,	-0.4	Nails, keirs	8 15 4 1:
	Sew. ma., cs. 397	24 5,745	Nails, cs	5 95
	Mf. iron, page 6	-310 :	Percussion	
	Cutlery, cs 3	71		1 3
	Nails, cs 10 Burners, case 1	50 3 3	Air guns, case	1 64
6	Burners, case 1 Nails, kegs 8	31		
	Ag. imp., pkgs 8	260	WWW.	1 88
	Hdw., pkgs 90 Clocks, pkgs 12	2,604	Hdw., case	1 90
	Clocks, pkgs. 12 Wringers, pgs 6	185		
	Bremen.		Clocks, cs 1	5 490
	Hdw., cs 32	458	Cutlery, pkgs 23	1 3,743
	Dutch metal,		Hdw., cs 17	2,594
	case 1	150	Ag.imp , pkgs 1: Nails, kegs 26	200
	Printing press 1	25	Cartridges,cs.	3 170
	Copenhager		Rifles, cs	576
	Clocks, cs 1	-31		2 35
	Christiania		Locomotive	
	Nails, cs 8		Saws, case	65
	Clocks, cs 6	115	Sew. ma., cs., 6	5 1,055
	Ag. imp.,pkzs 9 Hdw., cs 96		Mf. iron, pkgs	37
	Mf.iron, pkgs. 7	186	Shoe nails, bxs 2 Revolvers, cse	4 87 1 16
	Wringers, cs. 5	160		
	St'mp'd ware.	84	Central Ame	
			H lw., pkgs 18 Nails, kegs 28	
	Amsterdan Hdw. cs 2		Nails, kegs 2: Clocks, case	8 83
			Shot, pkgs	7 54
	Vises 40		Cutlery case.	31
0	Antwerp.		Cartridges,	
	Hdw., cs 6	66.	Mf. iron, case	9
	Mf. iron, pkge. 1	- 8	Tinware, case	
	Sew. ma., cs., 100	1,491		1 21
	Rifles, cs 8	1,000		5
	Saws, cs 2 Ag.imp., pkgs 4	181		175
	Gibraltar.	3.53	Naples.	
		62	Ag.imp., pkgs 69	1.264
		00	United State	s of
	Pumps, pkgs. 39	721	Colombia	
	Pumps, pkgs. 39 Mach'v. pkgs. 35	1,681	Ir n. pkgs 79	770
	Mach'y, pkgs. 25 Shears, cs 2 Clocks, cs 2	165	Primed shells,	
	438	40		270
	Clocks, cs 2	49	CH 21	
	Wire cloth.cse 1	21	Spelter, box	12
	Cutlery, cs 85	21 291	Pumps 11	12 323
	Cutlery, cs 85 Hdw., cs., 90	21 291 8,405 804	Pumps 11 Wash, machs.	12 328 3-8 3-8
3	Wire cloth.cse 1 Cutlery, cs 85 Hdw., cs 90 Guns, cs 9	21 291 3,405 804 2,586	Pumps	12 323 8-8 8-8 174
	Wire cloth.cse 1 Cutlery, cs 85 Hdw., cs 90 Guns, cs 9 Sew. ma., cs. 140 Ag. imppkge 1	21 291 8,405 804	Pumps 11 Wash. machs. 15 Firearms, cs. 15 Steam launch 11	12 323 3-8 3-8 3 174 3,250
3	Wire cloth.cse 1 Cutlery, cs 35 Hdw., cs 30 Guns, cs 9 Sew. ma., cs 140 Ag. imppkge 1 Glasgow.	21 291 8,405 804 2,586 45	Pimps	12 325 3-8 3-8 174 3,250 135
3	Wire cloth.cae 1 Cutlery, cs 35 Hdw., cs 90 Guns, cs 9 Sew. ma., cs 140 Ag. imppkge 1 Glasgow. Steel plates 8	21 291 3,405 804 2,586 45	Pimps	12 324 8-8 8-8 174 3,250 1 135 975
3	Wire cloth.cse 1 Cutlery, cs 35 Hdw., cs 90 Guns, cs 90 Sew. ma., cs. 140 Ag. impркge 1 Glasgow. Steel plates 8 Ag.imp., pkgs 2	21 291 8,405 804 2,586 45	Pumps. 11 Wash machs. 5 Firearms, cs. 5 Steam launch Ag. Imp.,pkgs 12 Steel, pkgs. 63 Copper wire, cs.	12 324 3-8 38 174 3,250 1 135 975
3	Wire cloth.cse 1 Cutlery, cs 35 Hdw., cs 30 Guns, cs 9 Sew. ma., cs 140 Ag. imp.,pkge 1 Glasyoue. Steel plates. 8 Ag.imp, pkgs 3 Hdw., cs 32 Hdw., cs 32	21 291 3,405 804 2,586 45	Pumps. 11 Wash, machs. 5 Firearms, cs. 5 Steam launch 1 Ag, imp., pkgs 12 Steel, pkgs. 62 Copper wire, cs	12 328 328 328 328 3250 174 3,250 275 170
3	Wire cloth.cse 1 Cutlery, cs 35 Hdw., cs 30 Guns, cs 9 Sew. ma., cs. 140 Ag. imp., pkge 1 Glasgow. Steel plates 8 Ag. imp., pkgs 3 Hdw., cs 32	21 291 8,405 804 2,586 45 910 150 897	Percuss. cs. sa Pumps. 11 Wash machs 1 Firearms, cs.	12 12 328 3-8 3-8 3 174 3,250 135 975 170 80 45
3	Wire cloth.cse 1 Cutlery, cs 35 Hdw., cs 90 Guns, cs 90 Sew. ma., cs. 140 Ag. imppkge 1 Glasgow. Steel plates. 8 Ag.imp.,pkgs 2 Hdw., cs 32 Clocks, pkgs. 23 Hutt.	91 991 8,405 804 2,586 45 910 150 897 418	Pumps. S. S. S. Pumps. S.	1 12 328 3-8 3 38 174 3,250 135 975 170 80 47 2,560
3	Wire cloth, cse 1 Cutlery, cs. 35 Hdw., cs. 30 Guns. cs. 90 Sew. ma., cs 140 Ag. imp. pkgs 1 Glasgoue. Steel plates. 8 Ag.imp. pkgs 2 Hdw., cs. 32 Clocks, pkgs. 23 Hutt. Saws, cs. 2 Wringers, cs. 2	21 291 8,405 804 2,586 45 910 150 897 418	Percuss. cap. Jeron barrows. files. cap.	1 12 325 388 3 174 3,250 1 135 975 2 170 80 45 2,560 3,960
3	Wire cloth.cse 1 Cutlery, cs. 35 Hdw., cs. 90 Guns. cs. 90 Sew. ma., cs 140 Ag. imppkge 1 Glasyore. Steel plates. 8 Ag.imp., pkgs 2 Hdw., cs. 32 Clocks, pkgs. 23 Hull. Saws, cs. 2 Wringers, cs. 2 Mr.iron, pkge. 1	21 291 3,405 804 2,586 45 910 150 897 418	Pumps. S. S. S. Pumps. S.	12 323 324 328 2 38 174 3,250 133 975 170 80 45 2,560 3,990 5,392 5,392 999
3	Wire cloth.cse 1 Cutlery, cs. 35 Hdw., cs. 30 Guns. cs. 90 Sew. ma., cs 140 Ag. imppkge 1 Glasgow. Steel plates. 8 Ag.imppkgs 2 Hdw., cs. 32 Clocks, pkgs. 23 Hull. Saws, cs. 2 Wringers, cs. 2 Mf. iron, pkge. 1 Hdw. cs. 55	21 291 3,405 805 805 45 910 150 897 418 14 58 12 57:	Pumps. S. S. S. Pumps. S.	12 12 12 12 12 12 12 12 12 12 12 12 12 1
3	Wire cloth.cse 1 Cutlery, cs. 35 Hdw., cs. 30 Guns, cs. 90 Sew. ma., cs 140 Ag. imppkge 1 Glasgow. Steel plates. 8 Ag.imppkgs 2 Hdw., cs. 32 Clocks, pkgs. 23 Hull. Saws, cs. 2 Wringers, cs. 2 Wringers, cs. 2 Mf. iron, pkge. 1 Hdw. cs. 55 Scales, cs. 3 Ag.imp., pkg8 4	21 2405 8,405 804 2,586 45 910 150 397 418 14 58 12 57; 61 82	Pumps	12 12 12 12 12 12 12 12 12 12 12 12 12 1
3	Wire cloth.cse 1 Cutlery, cs. 35 Hdw., cs. 90 Guns. cs. 90 Sew. ma., cs. 140 Ag. imppkge 1 Glasyore. Steel plates. 8 Ag.imp., pkgs 2 Hdw., cs. 32 Clocks, pkgs. 23 Hull. Saws, cs. 2 Wringers, cs. 2 Wringers, cs. 2 Mf. iron, pkge 1 Iddw. cs. 55 Scales, cs. 3	21 291 8,405 804 2,586 45 910 150 897 418 14 58 12 57 61	Pumps S. 17 Wash machs Firearms, cs. 5 Steam launch 1 Ag, imp.,pkgs 11 Steel, pkgs 62 Copper wire. Capper wir	12 12 324 325 325 325 325 325 325 325 325 325 325
3	Wire cloth, cse 1 Cutlery, cs. 35 Hdw., cs. 30 Guns, cs. 90 Sew. ma., cs 140 Ag. imp., pkge 1 Glasgow. Steel plates. 8 Ag. imp., pkgs 2 Hdw., cs. 32 Clocks, pkgs. 23 Hull. Saws, cs. 2 Wringers, cs. 2 Wringers, cs. 2 Millow. 55 Scales, cs. 3 Ag.imp., pkgs 4 Agate ware, cs. 3	21 2405 8,405 804 2,586 45 910 150 397 418 14 58 12 57; 61 82	Pumps. S. Brunns. S. Steam launch Ag, imp., pkgs 18 Steek, pkgs. 62 Copper wire. Cas. Caps. Caps. See See See See See See See See See Se	1 12 323 3-8 3-8 3-8 3-8 1 124 3,250 1 135 975 2 170 40 40 2,560 3,990 5,392 5,392 5,000 316 39 7,000 316 39 59 59 59 7,000 31 59 59 59 59 59 7,000 31 59 59 59 59 59 59 59 59 59 59
3	Wire cloth.cse 1 Cutlery, cs. 35 Hdw., cs. 90 Guns. cs. 90 Sew. ma., cs 140 Ag. imppkge 1 Glasgore. Steel plates. 8 Ag.imp., pkgs 23 Hdw., cs. 32 Clocks, pkgs. 23 Hattl. Saws, cs. 2 Wringers, cs. 2 Wringers, cs. 2 Mf. iron, pkge 1 Idw. cs. 35 Scales, cs. 3 Ag.imp., pkg8 4 Agate ware, cs. 3 London.	21 3,405 804 2,586 45 910 150 397 418 14 58 12 57; 61 62 55	Pumps. S. S. Pumps. S.	1 12 323 328 328 3 34 1 124 3 250 1 135 975 2 170 80 3 390 5 392 5 392 7 000 3 16 3 39 3 900 3 900 4 900 5 9
3	Wire cloth.cse 1 Cutlery, cs. 35 Hdw., cs. 90 Guns, cs. 90 Sew. ma., cs 140 Ag. imppkge 1 Glasgow. Steel plates. 8 Ag.imppkgs 2 Hdw., cs. 32 Clocks, pkgs. 23 Hall. Saws, cs. 2 Wringers, cs. 2 Mr.iron, pkge. 1 Hdw., cs. 55 Scales, cs. 3 Ag.imp., pkgs 4 Agate ware, cs. 9 London. Mach'y pkgs. 261 Saws, pkgs. 261 Saws, pkgs. 261 Saws, pkgs. 16	21 291 3,405 804 2,586 45 910 150 897 418 14 58 12 57; 61 182 55	Pumps. 11 Wash machs 5 Firearms, cs. 6 Stean launch 1 Ag. imppkgs 15 Steel, pkgs. 6 Copper wire, cs. 6 Case 1 For barrows 6 Sew. ma., cs. 161 Hdwpkgs. 201 Mf. fron. pkgs 48 Cutlery, cs. 3 Mach'y, pkgs. 204 Tinware, cs. 28 Brass goods, case 1 Lead pipe, csk 1 Sheet id., pkgs 2 Copper sheets	1 12 323 328 3 84 1 124 3 250 1 133 975 2 170 40 2 560 3 960 5 969 7 900 3 16 3 96 5 93 7 906 3 16 3 95 5 95 6 95 7 906 3 126
3	Wire cloth.cse 1 Cutlery, cs. 35 Hdw., cs. 90 Guns, cs. 90 Sew. ma., cs 140 Ag. imppkge 1 Glasgow. Steel plates. 8 Ag.imppkgs 2 Hdw., cs. 32 Clocks, pkgs. 23 Hall. Saws, cs. 2 Wringers, cs. 2 Mr.iron, pkge. 1 Hdw., cs. 55 Scales, cs. 3 Ag.imp., pkgs 4 Agate ware, cs. 9 London. Mach'y pkgs. 261 Saws, pkgs. 261 Saws, pkgs. 261 Saws, pkgs. 16	91 991 3,405 804 2,586 45 910 150 397 418 14 58 12 57 61 82 55 4,596 1,108	Pumps. S. S. S. Pumps. S.	1 12 1 323 3 324 3 325 2 334 3 174 3 1250 1 135 2 170 80 3 193 5 193 7 000 3 16 3 39 5 193 5 193 6 193 7 193 8 193
3	Wire cloth.cse 1 Cutlery, cs. 35 Hdw., cs. 90 Guns. cs. 90 Sew. ma., cs 140 Ag. imp.pkge 1 Glasgow. Steel plates. 8 Ag.imp. pkgs 2 Hdw., cs. 32 Clocks, pkgs. 23 Hull. Saws, cs. 2 Mriron, pkge. 1 Hdw., cs. 53 Ag.imp., pkgs 4 Agate ware, cs. 3 London. Mach'y pkgs. 201 Saws, pkgs. 10 Agateware, 23 London. Mach'y pkgs. 201 Saws, pkgs. 10 Ag. imp., pkgs. 240 W. mills, pkgs 240 W. mills, pkgs 242	21 291 3,405 804 2,586 45 910 150 397 418 14 58 12 57 61 82 55 4,596 1,106 2,085 1,900	Pumps. S. S. Pumps. S.	1 12 1 323 3 324 3 325 2 334 3 174 3 1250 1 125 1 170 1
3	Wire cloth.cse 1 Cutlery, cs. 35 Hdw., cs. 90 Guns. cs. 90 Sew. ma., cs 140 Ag. imppkge 1 Glasgore. Steel plates. 8 Ag.imp., pkgs 23 Hdw., cs. 32 Clocks, pkgs. 23 Hatt. Saws, cs. 2 Wringers, cs. 2 Mr. iron, pkge 1 Hdw. cs. 55 Scales, cs. 3 Ag.imp., pkg8 4 Agate ware, cs. 3 London. Mach'y pkgs. 261 Saws, pkgs. 16 Ag. imp., pkgs 97 Mr. iron, pkgs 97	91 991 3,405 804 2,586 45 910 150 897 418 14 58 12 57: 61 82 55 4,596 1,106 2,085 1,900 107	Pumps. 11 Wash machs 5 Firearms, cs. 6 Stean launch 1 Ag, imp.,pkgs 11 Steel, pkgs. 6 Copper wire, cs	1 12 1 324 1 328 1 248 3 250 1 133 1 133 1 133 2 560 3 975 2 170 80 3 980 5 392 5 392 5 392 5 392 1 25 80 3 975 1 2 5 80 3 975 1 2 5 80 3 975 1 2 5 80 1 3 6 80 1 3 6 80 1 3 6 80 1 3 6 80 1 3 8 80 80 80 80 80 80 80 80 80 8
3	Wire cloth.cse 1 Cutlery, cs. 35 Hdw., cs. 90 Guns. cs. 90 Sew. ma., cs 140 Ag. imppkge 1 Glasyore. Steel plates. 8 Ag.imp., pkgs 28 Hdw., cs. 32 Clocks, pkgs. 23 Hull. Saws, cs. 2 Wringers, cs. 2 Mr.iron, pkge 1 Hdw. cs. 55 Scales, cs. 3 Ag.imp., pkgs 4 Agate ware, cs 2 London. Mach'y pkgs. 261 Saws, pkgs. 10 Az.imp., pkgs 97 Mr.iron, pkgs 97 Mr.iron, pkgs 97 Mr.iron, pkgs 97 Pistols, case 1 Guns. cs. 15	91 991 3,405 804 2,586 45 910 150 897 418 14 59 12 57 61 182 55 4,596 1,106 2,085 1,900 107 423 564	Pumps. S. S. Pumps. S.	1 12 132 132 132 132 132 132 132 132 132
3	Wire cloth.cse 1 Cutlery, cs. 35 Hdw., cs. 90 Guns. cs. 90 Sew. ma., cs 140 Ag. imppkge 1 Glasyore. Steel plates. 8 Ag.imp., pkgs 28 Hdw., cs. 32 Clocks, pkgs. 23 Hull. Saws, cs. 2 Wringers, cs. 2 Mr.iron, pkge 1 Hdw. cs. 55 Scales, cs. 3 Ag.imp., pkgs 4 Agate ware, cs 2 London. Mach'y pkgs. 261 Saws, pkgs. 10 Az.imp., pkgs 97 Mr.iron, pkgs 97 Mr.iron, pkgs 97 Mr.iron, pkgs 97 Pistols, case 1 Guns. cs. 15	91 991 3,405 804 2,586 45 910 150 897 418 12 57: 61 12 55 4,596 1,106 2,085 2,	Pumps. S. S. S. Pumps. S.	1 12 132 1324 13250 1325 1325 1325 1325 1325 1325 1325 1325
8	Wire cloth.cse 1 Cutlery, cs. 35 Hdw., cs. 90 Guns. cs. 90 Sew. ma., cs 140 Ag. imppkge 1 Glasgow. Steel plates. 8 Ag.imp., pkgs 23 Hdw., cs. 32 Clocks, pkgs. 23 Hdw., cs. 2 Wringers, cs. 2 Wringers, cs. 2 Wringers, cs. 3 Ag.imp., pkgs 4 Agate ware, cs. 3 Ag.imp., pkgs 4 Agate ware, cs. 3 London. Mach'y pkgs. 261 Saws, pkgs. 16 Az.imp., pkgs. 16 Az.imp., pkgs. 240 W. mills, pkgs. 26 Saws, pkgs. 16 Az.imp., pkgs. 17 Pistols, case. 1 Guns, cs. 5 rumps, pkgs. 13 Hdw., pkgs. 13	21 291 3,405 804 2,586 45 910 150 397 418 14 58 12 55 61 8,085 1,106 2,085 1,106 2,085 1,000 107 424 61 107 425 61 61 61 61 61 61 61 61 61 61 61 61 61	Pumps. S. S. Pumps. S.	1 12 12 13 13 14 15 15 15 15 15 15 15 15 15 15 15 15 15
8	Wire cloth.cse 1 Cutlery, cs. 35 Hdw., cs. 90 Guns. cs. 90 Sew. ma., cs. 140 Ag. imppkge 1 Glasgow. Steel plates. 8 Ag.lmp., pkgs. 23 Hdw., cs. 32 Clocks, pkgs. 23 Hdw., cs. 2 Wringers. cs. 2 Wringers. cs. 2 Wringers. cs. 2 Wringers. cs. 5 Scales, cs. 3 Ag.imp., pkgs. 4 Agate ware, cs. 3 Ag.imp., pkgs. 4 Agate ware, cs. 3 London. Mach'y pkgs. 261 Saws, pkgs. 16 Az.imp.,pkgs. 16 Az.imp.,pkgs. 17 Mr. tron. pkgs. 7 Pistols, case. 1 Guns, cs. 5 rumps, pkgs. 18 Hw., pkgs. 186 Wire mold. 1 Clocks, pkgs. 9, pkgs. 194 Wringers. 186 Wire mold. 1 Clocks, pkgs. 9, pkgs. 195 Wire mold. 1	21 291 3,405 8546 45 910 150 897 418 14 58 12 57: 61 82 55 1.106 2,085 1.106 2,085 1.300 1.500 0,195 0	Pumps. S. S. S. Pumps. S.	1 12 13 13 14 15 16 16 16 16 16 16 16 16 16 16 16 16 16
3	Wire cloth.cse 1 Cutlery, cs. 35 Hdw., cs. 90 Guns. cs. 90 Sew. ma., cs. 140 Ag. imppkge 1 Glasyore. Steel plates. 8 Ag.imppkgs 2 Hdw., cs. 32 Clocks, pkgs. 23 Hdw., cs. 22 Clocks, pkgs. 23 Hull. Saws, cs. 2 Wringers, cs. 2 Mr.iron, pkge. 1 Hdw. cs. 55 Scales, cs. 3 Ag.imp., pkgs. 4 Agate ware, cs. 3 London. Mach'y pkgs. 261 Saws, pkgs. 16 Ag.imp., pkgs. 97 Mr.iron, pkgs. 17 Pistols, case. 1 Guns, cs. 5 Yumps, pkgs. 3 Hdw., pkgs. 15 Wire mold. 1 Clocks, pkgs. 991 Sew. ma., cs. 10	291 291 3,405 405 405 405 418 910 150 397 418 14 58 12 57: 61 1,106 1,106 1,106 1,106 1,106 1,106 1,106 1,107 1,085 1,107 1,085 1,08	Pumps. S. S. Pumps. S.	1 12 13 13 14 15 16 16 16 16 16 16 16 16 16 16 16 16 16
8	Wire cloth.cse 1 Cutlery, cs. 35 Hdw., cs. 90 Guns, cs. 90 Sew. ma., cs. 140 Ag. imppkge 1 Glasgow. Steel plates. 8 Ag.imp., pkgs 29 Hdw., cs. 32 Clocks, pkgs. 23 Wringers, cs. 2 Wringers, cs. 2 Wringers, cs. 2 Mf.iron, pkge. 1 Hdw. cs. 55 Scales, cs. 3 Ag.imp., pkgs 4 Agate ware, cs. 9 London. Machly pkgs. 261 Saws, cs. 20 London. Machly pkgs. 261 Saws, pkgs. 16 Az.imp.,pkgs. 27 Mf. iron, pkgs. 17 Guns, cs. 5 rumps, pkgs. 3 Hdw., pkgs. 16 Ag. 100, pkgs. 126 Guns, cs. 5 rumps, pkgs. 3 Hdw., pkgs. 166 Guns, cs. 5 rumps, pkgs. 166 Ure moid. 1 Clocks, pkgs. 96	211 291 3,405 804 45 910 150 397 418 14 58 12 57; 61 1,106 2,186 1,106 2,186 1,106 4,706 1,106 2,186 6,119 4,706 1	Pumps. S. Brunns. S. Steam launch Ag, imp., pkgs 18 Steek, pkgs. 62 Copper wire. Cs. Steam launch I Steek, pkgs. 62 Copper wire. Cs. Steam launch I Steek, pkgs. 69 Copper steam Cs. Steam launch I Steek, pkgs. 200 Mf. iron, pkg	1 12 3.28 3.28 3.28 1 174 3.280 1 173 2 170 40 2,560 3,990 7,000 316 3,990 7,000 316 3,290 126 3,290 126 3,290 126 127 128 129 129 129 129 129 129 129 129
	Wire cloth.cse 1 Cutlery, cs. 35 Hdw., cs. 90 Guns. cs. 90 Sew. ma., cs. 140 Ag. imppkge 1 Glasyore. Steel plates. 8 Ag.imppkgs 2 Hdw., cs. 32 Clocks, pkgs. 23 Hdw., cs. 22 Clocks, pkgs. 23 Hull. Saws, cs. 2 Wringers, cs. 2 Mr.iron, pkge. 1 Hdw. cs. 55 Scales, cs. 3 Ag.imp., pkgs 4 Agate ware, cs. 3 London. Mach'y pkgs. 261 Saws, pkgs. 16 Ag.imp., pkgs 97 Mr.iron, pkgs. 17 Pistols, case. 1 Guns, cs. 5 Yumps, pkgs. 3 Hdw., pkgs. 15 Wire mold. 1 Clocks, pkgs. 991 Sew. ma., cs. 10	211 291 3,405 804 45 45 910 150 397 418 14 58 12 257 61 1,106 1,10	Pumps	1 12 3.28 3.28 3.88 1 174 3.280 1 173 2 170 40 2,560 3,990 7,000 316 399 7,000 316 325 8125 86 85 87 86 87 87 88 88 88 88 88 88 88 88
3	Wire cloth.cse 1 Cutlery, cs. 35 Hdw., cs. 90 Guns. cs. 90 Sew. ma., cs. 140 Ag. imppkge 1 Glasgore. Steel plates. 8 Ag.imp., pkgs 28 Hdw., cs. 32 Clocks, pkgs. 28 Hattl. Saws, cs. 2 Wringers, cs. 2 Wringers, cs. 2 Mr. iron, pkge 1 Idw. cs. 55 Scales, cs. 3 Ag.imp., pkgs 4 Agate ware, cs. 2 London. Mach'y pkgs. 261 Saws, pkgs. 16 Ag. imp., pkgs 97 Mr. iron, pkgs 97 Mr	211 291 3,405 940 2,586 45 910 150 397 418 14 58 12 57 1,106 1,1	Pumps. S. S. S. Pumps. S.	1 12 12 12 12 12 12 12 12 12 12 12 12 12
8	Wire cloth.cse 1 Cutlery, cs. 35 Hdw., cs. 90 Guns. cs. 90 Sew. ma., cs. 140 Ag. imp.pkge 1 Hdw., cs. 32 Clocks, pkgs. 23 Hdw., cs. 32 Clocks, pkgs. 23 Hdw., cs. 5 Kring, pkgs 4 Ag. imp., pkgs 4 Ag. imp., pkgs 5 Scales, cs. 3 Ag. imp., pkgs 4 Agate ware, cs. 3 London. Mach'y pkgs. 261 Saws, pkgs. 16 Ag. imp., pkgs 27 Fistols, case. 1 Guns, cs. 5 Tumps, pkgs 7 Pistols, case. 1 Guns, cs. 5 Tumps, pkgs 7 Hdw., pkgs 7 Fistols, case. 1 Guns, cs. 5 Tumps, pkgs 7 Holocks, pkgs. 91 Guns, cs. 5 Tumps, pkgs 7 Guns, cs. 5 Tumps, pkgs 7 Fistols, case. 1 Guns, cs. 5 Tumps, pkgs 7 Guns, cs. 5 Tumps, pkgs 7 Fistols, case. 1 Guns, cs. 5 Tumps, pkgs 7 Fistols, case. 1 Guns, cs. 5 Tumps, pkgs 7 Fistols, case. 1 Guns, cs. 5 Tumps, pkgs 7 Fistols, case. 1 Guns, cs. 5 Tumps, pkgs 7 Fistols, case. 1 Guns, cs. 5 Tumps, pkgs 7 Fistols, case. 10 Cartridges, cs. 29 Newfoundlan Hdw., cs. 22 Brass gds, cs. 2	911 911 913 904 2,586 45 45 910 910 150 397 418 144 58 12 2,57 1,106 1,1	Pumps	1 12 3-8 3-8 3-8 3-8 3-8 3-8 3-8 3-8 3-8 3-8
8	Wire cloth.cse 1 Cutlery, cs. 35 Hdw., cs. 90 Guns. cs. 90 Sew. ma., cs. 140 Ag. imppkge 1 Glasgore. Steel plates. 8 Ag.imp., pkgs 23 Hdw., cs. 32 Clocks, pkgs. 23 Hattl. Saws, cs. 2 Wringers, cs. 2 Wringers, cs. 2 Wringers, cs. 3 Ag.imp., pkgs 4 Agate ware, cs. 3 Ag.imp., pkgs 4 Agate ware, cs. 3 London. Mach'y pkgs. 261 Saws, pkgs. 16 Az.imp., pkgs. 20 W. mills, pkgs 97 Mf. iron. pkgs 7 Pistols, case 1 Guns, cs. 5 rumps, pkgs. 14 Clocks, pkgs. 19 Sew. ma., cs. 10 Cartridges, cs. 29 Newfoundlan Hdw., cs. 22 Brass gds, cs. 2 Clocks, cs. 40 Clocks, pkgs. 92 Rewfoundlan Hdw., cs. 22 Brass gds, cs. 2	211 291 3,405 404 42,586 45 41 910 1150 397 418 12 57; 61 12 57; 62 1,109 42,985 1,109 42,985 1,109 42,985 1,109 42,988 61,10 42,988 884 47,40 48,10 4	Pumps. S. Brunners. S. Brunners. S. Steam launch 1 Ag. imp., pkgs 1 Steel, pkgs. 62 Copper wire. Cas. S. Steam launch 1 Ag. imp., pkgs 1 Steel, pkgs. 62 Copper wire. Cas. S. Steel tub. 1 Sheet id., pkgs 2 Copper sheets 62 Copper sheets 63 Nails, kegs. 17 Saws, 63 17 Tacks. 63 17 Tacks. 63 17 Tacks. 65 1	1 12 3 3 4 5 5 6 6 6 5 7 1 1 1 1 2 6 6 6 1 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1
8	Wire cloth.cse 1 Cutlery, cs. 35 Hdw., cs. 90 Guns, cs. 90 Sew. ma., cs. 140 Ag. imp.,pkge 1 Hdw., cs. 32 Clocks, pkgs. 23 Hdw., cs. 32 Clocks, pkgs. 23 Hall. Saws, cs. 2 Mriron, pkge 1 Hdw., cs. 3 Ag. imp., pkgs 4 Agate ware, cs. 3 Ag. imp., pkgs 4 Agate ware, cs. 3 London. Mach'y pkgs. 261 Saws, pkgs. 16 Az. imp.,pkgs. 27 Mriron, pkgs. 196 Sww, pkgs. 16 Az. imp.,pkgs. 29 Sww, pkgs. 196 Williamp.,pkgs. 196 Williamp.,pkgs. 9 Hdw.,pkgs. 196 Wire mold. 1 Clocks, pkgs. 99 Sew. ma., cs. 10 Cartridges, cs. 29 Newfoundlan Hdw., cs. 22 Brass gds, cs. 2 Clocks, cs. 4 Mach'y, pkgs. 4	211 291 3,405 804 45 910 150 910 150 397 418 14 58 12 257 61 1,106	Cooks. S.	1 12 12 12 12 12 12 12 12 12 12 12 12 12
3	Wire cloth.cse 1 Cutlery, cs. 35 Hdw., cs. 50 Guns. cs. 60 Sew. ma., cs. 140 Ag. imppkge 1 Glasgow. Steel plates. 8 Ag.imppkgs 2 Hdw., cs. 32 Clocks, pkgs. 23 Hall. Saws, cs. 2 Wringers. cs. 2 Mr.iron, pkge. 1 Hdw. cs. 55 Scales, cs. 3 Ag.imppkgs 4 Agate ware, cs. 3 Ag.imp., pkgs 4 Agate ware, cs. 3 London. Mach'y pkgs. 261 Saws, pkgs. 16 Az.imppkgs. 16 Az.imppkgs. 17 Guns, cs. 15 rumps, pkgs. 18 Hw., pkgs. 186 Wire mold. 1 Clocks, pkgs. 19 Sew. ma., cs. 10 Cartridges, cs. 2 Newfoundlan Hdw., cs. 22 Brass gds, cs. 2 Clocks, cs. 4 Mach'y, pkgs. 8 Mr. iron, pkgs. 8 Mr. iron, pkgs. 8	911 991 8,405 804 45 804 45 807 418 115 115 115 115 115 115 115 115 115 1	Pumps. S. S. S. Pumps. S.	1 12 3-8 3-8 3-8 3-8 3-8 3-8 3-8 3-8 3-8 3-8
8	Wire cloth.cse 1 Cutlery, cs. 35 Hdw., cs. 90 Guns. cs. 90 Sew. ma., cs. 140 Ag. imppkge 1 Glasgore. Steel plates. 8 Ag.imp., pkgs 23 Hdw., cs. 32 Clocks, pkgs. 23 Hatt. Saws, cs. 2 Wringers, cs. 2 Wringers, cs. 2 Wringers, cs. 3 Ag.imp., pkgs 4 Agate ware, cs. 3 Ag.imp., pkgs 4 Agate ware, cs. 3 London. Mach'y pkgs. 261 Saws, pkgs. 16 Az.imp.,pkgs, 260 Wr. iron, pkgs, 17 Pistols, case. 1 Guns, cs. 5 rumps, pkgs. 19 Hdw., pkgs. 196 Wire moid. 1 Clocks, pkgs. 190 Sew. ma., cs. 10 Cartridges, cs. 20 Newfoundlam Hdw., cs. 22 Brass gds, cs. 2 Clocks, cs. 4 Mach'y, pkgs. 8 M. iron, pkgs. 8 M. iron, pkgs. 8 M. iron, pkgs. 8 M. iron, pkgs. 8	211 3,405 405 405 405 405 405 405 418 910 130 397 418 12 57 15 57 16 11 22 57 11 45 45 45 45 45 45 45 45 45 45 45 45 45	Pumps. S. 28 Pumps. S. 28 Pumps. S. 31 Wash machs 5 Firearms, cs. 48 Steam launch 1 Ag, imp., pkgs 11 Steel, pkgs. 68 Copper wire, cs. 5 Percuss. caps, cass. 30 Hdw. pkgs. 30 Mf, iron, pkgs 48 Tinware, cs. 28 Brass goods, cass. 30 Mach'y, pkgs. 31 Cartridges, cs. 5 Jacks. 32 Nails, kegs. 17 Saws, cs. 17 Tacks, cs. 2 Steel tubs. 10 Boat. 1 Wat. closets. 6 Wire cloth, cs. 3 Genoa. Hdw. case. 1 Brass goods, cass. 30 Mf, iron, pkgs 3 Sew. ma., cs. 30 Sew. ma., cs. 30 Arms, case. 1 Porto Rice Mach'y, pkge 1 Copper roil. 1	1 12 3 3 4 5 5 6 6 6 5 7 7 0 10 13 1 6 6 6 5 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
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Argentine Republic,
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Stamp ware.
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S nails, cs. 190 370
Nails, kegs. 190 20
Saws, cs. 2 57
Cuttlery, cs. 5 60
Ag, imp. pkgs 402 3,310
Sew. ma., cs. 45 603
Clocks, cs. 42 853
Mach y, pkgs. 2 302
Mf, fron, pkgs. 19 1,303
Nails, bxs. 500 1,654 Mach'y, pkgs. 125 3,157
Pumps, pkgs. 20 850
Nails, kegs. 25 67
Hdw., pkgs. 23 332
Mf. fron, pkgs. 79 590
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Ecuador.

Mf. iron, pkgs 550 2,143

Japan.

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Uruquay.

Uruguay.
Hdw., pkgs. 134 2,521
Mf. iron, pkgs. 22 335
Mach'y, pkgs. 15 301
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Wire goods, es. 21 192
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Argentine Republic.

Harre.

utlery, case.

Pump. Copper casks, Hdw., cs



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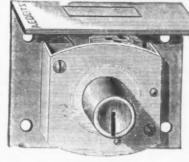
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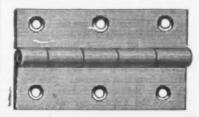


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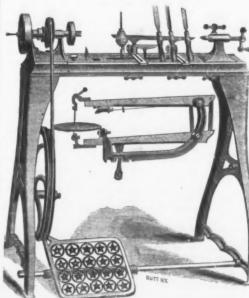
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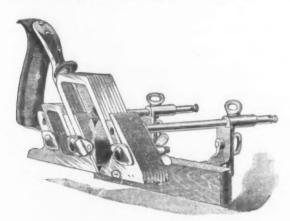
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Walker's Adjustable Face Plaue.

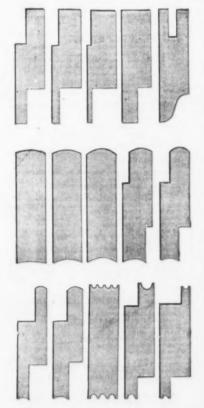
The E. Walker Tool Company, of Erie, Pa., are manufacturing an adjustable face plane, an illustration of which appears in

wooden handle is a gas pipe provided with a Kohler's Automatic Extension Stepgas-cock for admitting or shutting off the gas supply. The wooden handle and the bits are connected by a larger gas-pipe open at the end for admitting air to mix with the



Walker's Adjustable Face Plane.

is composed of eight plates, so fastened to-gether and held that they may be adjusted to any shape desired according to the bit that is to be employed in the plane. In order to adjust the face to any requirement the thumb-nut bolts are loosened. The bit is then put in place, and the plates, which have their edges rounded, are adjusted even with the bit. The nuts are tightened and the plane is then in condition for use the same as any



Bits Furnished with Walker's Adjustable Face Plane.

other plane. The bit is adjusted for depth of cut by the nut and rod in the upper arm. An adjustable fence which is supplied with the plane is shown in the engraving, and is so constructed that it can be used on either side. It is clamped to rods by split sleeves which prevent slipping in planing against knots. A depth gauge is also furnished, but when less than the also furnished, but when less than the full width of the plane is used a part of the face can be used as a depth gauge or as a fence for side beading. Cutting spurs are likewise furnished, which can be used for all work desired. The planes are made of malleable iron and steel, and all parts are nickel plated. They are mounted with rosewood fences and handles. The makers, in sending out this article, supply with it a cut showing sections of the face of the plane and the position of the plates when plane and the position of the plates when set so as to fit different forms of bits. In the diagram a continuous line shows the shape of the bit, while above it shows the position of the different plates. One-half of the plates have half-round edges, while the other half have a cove and round, so as to fit in narrow places and sharp corners. The convenience of the tool is apparent.

Mfg. Company, are offering to the trade the lamps direct instead of being sustained from ally and is as cheap as the kind now in use.

nosing, sash, table, Roman and various styles of ogee, hollow and round and different forms of molding planes. By reference to the engraving it will be seen that the face of gas is regulated by the gas-cock next to the head of the head of the seen that the face. the handle. As shown in the cut, the flame surrounds the upper bit, and when it is heated the iron is turned over, and while one bit is used for soldering the other is being heated, so that the iron can be used being heated, so that the iron can be used continuously by simply reversing the bits. The Economic soldering iron is also made with a single bit, which is heated by a gas flame in the same general way. When desired hatchet bits are provided either singly or in pairs, attached similarly to the fluted bits described. By the use of these irons no furnace is needed, all that is necessary being a gas jet within reasonable distance of where the work is done. It will be seen that one of these double irons serves the same purpose as two ordinary irons, for the same purpose as two ordinary irons, fo one bit is always being heated while the other is in use. It is stated that the consump tion of gas by these soldering irons is only a cubic foot per hour, and that a cold bit can be heated ready for use in three minutes.

The simplest way of holding the iron when in use and for first heating is to rest it in a block of wood about 4 inches square, with a V groove in it large enough to hold the pipe The Economic soldering iron has been used for some time in Europe, and a number of

Orient Cluster Lamps.

testimonials to its merits are given by English stained-glass workers and others.

The accompanying illustration represents one form of the Orient Clustration represents one form of the Orient Clustor Lamps, which are being put upon the market by the Lamp and Brass Works of W. J. Gordon, of Cleveland, Ohio. The principles upon which the lamps operate are well known in other forms, but their combination is new. The oil is c. ptained in the reservoir shown poor oil is c. ntained in the reservoir shown near the center of the engraving, and is fed to the several lamps upon the student-lamp principle. The burners employed are of a kind well known to many of our readers. heing long employed upon what is known in the trade as the Cleveland non-explosive lamp. The burner is argand in principle, using a round wick and admitting a current of air up through the lamp. The flame is spread by means of a metal cap fixed some-

Ladder.

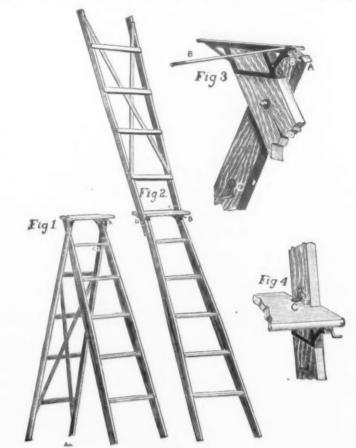
This article, which is represented in the ecompanying illustrations, Figs. 1, 2, 3 and the engravings, below. This plane is gas which issues from the amaller pipe, so designed to take the place of the endless that the gas is burnt under the same conditions as in a Bunsen burner. Between the kits of carpenters, including such as the kits of carpenters, including such as plows, dadoes, rabbets, filletster, side bead, center bead, reeding, cove, quarter-round, casting and operating rod, and Fig. 4 a detail view of the ladder when extended, showing the small casting that holds the extended part from falling back. It will be understood that when used as an ordinary

fected by altering the displacement, making and 70 feet deep, have been sunk into the the boat to a certain extent telescopic. This does not commend itself to our judgment, as slight injury to the mechanism by which this is accomplished might prevent its action. Propulsion is given by electric motors worked by storage batteries, which greatly limits the sphere of operations of the boat.

The Gogebic Iron Range .- IV.

BY JOHN BIRKINBINE, PRILADELPHIA.

Mines in Wisconsin. —Just across the Mon-treal River, and close to its bank, a shaft has

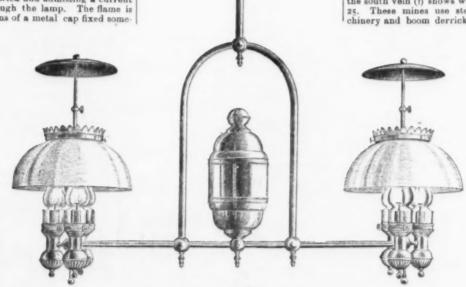


Kohler's Automatic Extension Step Ladder,

stepladder, it is merely drawn apart until been sunk through the drift 60 feet to the ore, the hooks A come in contact with the rod B.

When it is desired to extend it into a ladder the end of the rod B is raised, so that the the Minnewawa Mine. The ore found appears hooks A can pass, and the back of the ladder then raised up, making a continuous ladder, as shown in Fig. 2. The casting C will then, it is stated, set itself and hold

to be of excellent quality, but exploration had not demonstrated its width or deter-mined if the strike was, as is supposed, 1300 mined if the strike was, as is supposed, 1300 feet long. The Germania Mine, which lies west of the Minnewawa Mine, controls 160 acres, through which the ore-hearing rocks have a strike of about 2700 feet. The ore here is taken from the slopes, and has the peculiarity of exposing upon the faces of some masses of specular ore the botrioidal forms resulter to the needle group and kid. forms peculiar to the needle grape and kid-ney forms of limonite, and occasional glades. When visited the working slope had pene trated to a depth of 90 feet, of which one balf is through an ore body showing a width of 18 to 20 feet. The shipment of ore of 5,469 tons in 1885 was increased by about 25,000 tons in 1886. Following next after the Germania Mine are the Nimikon. Kaka gon, Bessemer, Superior and Odanah mines each of which controls 80 acres of land through which the ore bearing rocks strike, the aggregate being 1½ miles, and in which the south vein (?) shows widths of from 7 to 25. These mines use steam hoisting machinery and boom derricks or skip roads,



ORIENT CLUSTER LAMP

The Economic Gas Soldering Iron.

The Colwell Lead Company, 63 Centre street. New York, as agents for the A. Giles

Mr. Company are effecting to the trade the larged of the image street is the simple of the construction of this ladder, and the fact that it works automatically the simple of the construction of this ladder, and the fact that it works automatically the simple of the construction of this ladder, and the fact that it works automatically the simple of the construction of this ladder, and the fact that it works automatically the simple of the construction of this ladder, and the fact that it works automatically the simple of the construction of this ladder, and the fact that it works automatically the simple of the construction of this ladder, and the fact that it works automatically the simple of the construction of this ladder, and the fact that it works automatically the simple of the construction of this ladder, and the fact that it works automatically the simple of the construction of this ladder, and the fact that it works automatically the simple of the construction of the simple of the construction of the simple of the construction of the construction of the simple of the construction of the simple of the construction of the con

At the Nimikon Mine, adjoining the Germania, the slopes were down about 50 feet, feet in depth, the ore occurring close to the surface. The development of the coming seasurface. The development of the coming season will, however, probably be underground. The Bessemer Mine has open pit and two vertical shafts, one of which is zacfeet deep. of which 90 feet are ore, a horse dividing it in sections, as in other mines. Drifts show the ore to extend along the strike. From one amounts were shipped in the first and of the shafts some fine specimens of pyrolusite were obtained, and manganese seems to exist here in quantity. The Superior Mine has three and the Odanah Mine two slopes, from 60 to 80 feet in depth, from which the ore for shipment was taken.

For three-quarters of a mile beyond the Odanah Mine, along the strike, development work, but no shipments, have characterized the operations on the 80 acres controlled by the Amazon Mine, on which two shafts, 40

ore; on the 120 acres controlled by the Bourne Mine, with a shaft 140 feet deep in the hanging wall, which was cross cut to tree, and with trial pits, and on the 80 acres controlled by the Moore Mine in which explorations are in progress. The Amazon and Bourne properties are partially in the valley of the west branch of the Montreal River. The Trimble Mine comes next, and shows the south vein (?) in two open pits, the workings of which are being extended underground. The ore was struck within To feet of the surface, and at a depth of 70 feet shows a width of about 30 feet. Boom derricks and buckets remove the ore as derricks and buckets remove the ore as mined, of which 11,871 tons were shipped in 1886. The tract controlled embraces 80 acres, through which the ore-bearing rocks strike for 1310 feet, and the same may be said of the Section 33 Mine, adjoining the Trimble on the west, upon which explorations are in progress, and of the Montreal Mine, lying west of Section 33.

The Montreal Mine is the "show" mine of the Wisconsin series, being an open cut.

The Montreal Mine is the "show" mine of the Wisconsin series, being an open cut exhibiting a considerable mass of soft blueblack ore, from which 15,615 tons had been taken up to November 24. The 15 feet of stripping are removed by dump cars on an inclined plane, and the ore is mined by buckets, boom derricks and skips. This cut is near the western end of the strike of 1350 feet through the 80 acres controlled by the company, and shows a width of about 80 company, and shows a width of about 80 company. company, and shows a width of about 80 feet; but shafts sunk further east find a continuation of the ore body—believed to be the south vein (!)—of less width. Here, too, one of the horses above referred to is seen in the open pit. In addition to the 27 mines herein described, operations to determine the existence of the very hody or adjac. mine the existence of the ore body on adjacent properties are in progress, but the descriptions include the operations, which are continuous along the strike of the vein for 11 miles. As the land is divided by townships, sections and ranges into rectangular tracts, through which the ore bearing rocks strike diagonally, the value of the mines is dependent upon whether the dip is into or away from the properties, and each corner where the strike apparently approaches the lines of companies now mining is taken up by others, but these developments have not been chronicled, the intention of this sketch being solely to show how develop-ment has been prosecuted in the section of the Gogetic iron range included between the Colby Mine on the east and the Mon-treal Mine on the west, with the variations in depth at which the ore occurs, the apparent width of the vein and the position of the openings upon what are claimed by many to be two distinct veins of ore.

The character of the ores mined in the Gegebic iron range is a red bematite with occasional limonite, and the color of the water pumped from the mines or of the mud found in or about them gives the impression that they are the reddest of hemotites. Carelessness in descending shafts where water abounds without proper protection, or the use of a mining suit over a white collar, will be positive proof to the eye that one has been below. The appearance of the cres from the various mines and in some cases from the same mine differs materially both as to color and hardness—the colors being nearly black, blue black, brown and almost brick red, the hardness from a soft mass of finely comminuted ore to compact lumps, and occasionally grape, needle or kidney forms with brilliant surface. The composition of the ore as shipped has been shown by the analyses furnished by consumers and published in *The Iron Age*, and additional analyses are unnecessary. Up to the present time the shipments have been confined to ores within the Bessemer limit, of one part of phosphorus in 1000 parts of iron. one part of phosphorus in 1000 parts of iron, or 0 of P. in an ore containing 60 per cent, of iron; and where the amount of P. exceeds this limit, the average has been maintained by mixing with ore lower in P. There will, however, be a considerable supply of rich ores which may be available for other than Beasemer purposes; and these should find a ready market. The occurrence of manganese cannot from present exploitations to considered as being at all regular, but its appearance in what is considered the South voin (1) is more general than in the ore thought to be of the North voin (1). The proportions of this metal varying from trace to 33 per cent. in quantities of ore and specimens of pyrrhisite are found. Alumina found in most of the ores, the amount varying from 0.5 to 5 per cent., while the silver is from 3 to 13 per cent. Water to the extent of 5 per cent. exists in the hard ores and to a greater amount in the softer varieties. Traces of sulphur, manganese and lime are also determined by analyses. COMPARATIVE DATA.

The following may be of interest as showing the relative importance which some of the great mines of the older Lake Superior mines achieved in their early history, and which shows that the mines of the Gogebic iron range are not the only ones which have developed rapidly. The output in the years

named was as follows:		
Lake Superior	1858	 4,658
Lake Superior	1859	21,668
Republic	1872	11.0:5
Republic	18 3	105,453
Michigamme	1899	141
Michigamme	18.3	28,006
Vulcan	1517	4,513
Vulcan	1874	31,129
Che pin	1881	34,556 184,717
Chapin	1870	2 . 29

The years first given are the first in which most of which was in ore. The Kakagon Mine exhibits a series of open pits about 30 following first year shipments are recorded.

	Year.		Tons
Lake Angeline			
Barnum	1-68		14,386
Spurr	1874		31,183
Quinnisee	1878		20,407
Iron River	1,645		21115
Metropolitan			
Of the Gogebic mine			
amounts were sh pped in th	e first	and s	econd

	Tons.	Tons.
Colly	F4 3 2	248,810
Norrie		114.653
Ashland. '	6, 171	67,418
Germania.	5,460	218.0
Aurora.		98.482*
Iron King		24.605*
Ironton		18,454.
Kakagon.		17,682*
Pabst		17.687
Puritan Up to November 24 1886.	*****	17,648*
Oh so transmission of record		

The Economic Gas Soldering Iron

Economic Gas Soldering Iron, the general features of which will be readily understood by reference to the accompanying cut. The produced is very soft and yet brilliant, and the lamps have the advantage of being thoroughly constructed and neatly put to gether. Several different styles are manufactured adapted to different requirements.

Nº 327, 896.

How have the control of the control

Current Hardware Prices, December 29, 1886.

HARDWARE.	Concon Wrought	10 % Cotton	Advance No. 1.	Hurd's
'aps, Percussion, \(\Phi\) 1000— Hicks & Goldmark's F, L. Waterproof, 1-10's	Kentucky "Star"	Carpet Stretchers. Cast Steel, Polished	Electric Bell Sets.—Wollensak's	Pookits and the second
Double Waterproof, 1-10's	Sellows 3lacksmiths'	Carpet Sweepers	1	Shingling, Nos. 1 2 3. \$\psi\$ doz \$5.50 \$6.00 \$6.50 \$7.00 \$1.23 \$\psi\$ doz \$6.50 \$6.00 \$6.50 \$7.00 \$1.24 \$\psi\$ doz \$5.50 \$6.00 \$6.50 \$1.00 \$1.24 \$\psi\$ doz \$5.50 \$6.00 \$6.50 \$1.24 \$\psi\$ doz \$5.50 \$1.25 \$\psi\$ doz \$5.25 \$\psi\$ doz \$
F. L. Ground	100	5 % Mystic. # doz \$16.00 5 % Cottage. # doz \$15.00	0 Door Lock	Lightning
C stridges————————————————————————————————————	Weston's, per dos No. 1, \$10 : No. 2, \$9 . dis 20x1/08. 2 Weston's, per dos No. 1, \$10 : No. 2, \$9 . dis 20x1/08. 2 Worrill's	Hub # doz \$16.00		Hinges. Wrought from Hinges— Strap and T
tions 16 g over above discounts. Blank Cartridges, 22 cal. \$1.50, dis Blank Cartridges, 32 cal. \$3, dis Primed Shells and Bullets dis 25& B. B. Caps, Round Ball. \$1.60, dis B. B. Caps, Concal Ball, Swaged. \$1.75, dis	* * * * * * * * * * * * * * * * * * *	Church ges.—See Ammunition. Cartridges.—See Ammunition. Casters. Bed. New list July 8, Plate 1886, dis 50&10	Anchor Lock	Screw Hook and Eye
Berdan Primers, all sizes, and B. L. Caps (for Sturtevant Shells)	Tacelsfor	Casters	Self-Measuring, Enterprise \$\psi\$ dos \$36.00—\text{dis 20&10 } \$\text{Self-Measuring, Lane's} \$\psi\$ dos \$36.00—\text{dis 25&10 } \$\text{Self-Measuring, Victor.} \$\psi\$ dos \$36.00=\text{dis 25&10 } \$\text{Self-Measuring, Victor.} \$\psi \text{dis 25&10 } \$\text{Self-Measuring, Victor.} \$\psi\$ dos \$36.00=\text{dis 25&10 } \$\text{Self-Measuring, Victor.} \$\text{dis 25&10 } \$\text{Self-Measuring, Victor.} \$\text{dis 25&10 } \$	Plate Hinges 8, 10 & 12 in., # b
Sefoold's Combination Shot Shellsdis 25&10&19 Paper Shot Shells, Club, Rival, Climax.dis 40&5&1 Paper Shot Shells, Star Branddis 40&5&5 Brass Shot Shells, Ist qualitydis 60&1 Brass Shot Shells, Club, Rival & Climaxdis 65&1 #ddsdis 65&1	2 \$ Washburn's Old Pattern	et Humason, Beckley & Co.'sdis 75 %	Fifth Wheels.—Derby and Cincinnati dis 45&5 % Files. Domestico— Reat brands	Union Spring Hinge Co. Ist. March. 1886. dis 20 s Acme. Crown. Empire and U.S. dis 30 s American, Gem, and Star, Japanned. dis 20 s American, Gem, and Star, Bronzed. net Oxford, Bronze and Brass. net Oxford, Bronze and Brass
** ads=" (** ** ** ** ** ** ** ** ** ** ** ** **	# Hind Staples. Sarbed, % in. and larger	Trace, 614-10-2, Eng. sizes # pair 79# } Trace, 614-10-3, Eng. sizes # pair 70# } Trace, 7-10-2, Eng. sizes # pair 86#	Moss & GambleList April 1, 1883, dis 15 %	Buckman's dis 25 s Chicago dis 30 s Cate Hingdo
10	Ale 86 8 10	American Coli S-16 4 5-16 % 7-16 46 % 34 1 In cask lots, 846 546 446 4.16 4.16 4.16 4.5 3.76 3.56 Less than cask lots, add 46 \$ 3. 6 \$ 5 \$ 6.5 \$	Turton's Turton's list dis. 20 @ 25 %	Gate Hingse Western
Wikinson's 94,46611 J. & Rilev Carr Patent Solid 1163113 Anvil Vise and Drill— Hillers Falls Co. \$18.00, dis 20 Chenev Anvil and Vise. \$3, dis 40&10 Alren Combined Anvil and Vise. \$3, dis 40&10	Cast fron Chain (sargenc's list	Covert Tracesdis 40&2 %	Eagle, 546-Inch Roll 2.85, die 35 % Crown, 44 in., \$3.50 e.in., \$4.00; 8.in., \$6.50 e.ach, die 35 % Crown Jewel, \$3.50 e.ch., \$4.50 e.ach, die 35 % American, 5-in., \$3; 5-in., \$3.40; 7-in., \$4.50 e.ach, die 35 % Domestic Fluter 1.51.50 e.ach, net	Shepard's, No. 3.
Hayden & Isanes		Chaik.	Geneva Hand Fluter, White Metal. \$\psi\$ dos \$12, 418 25 \$\psi\$ (Crown Hand Fluter, Nos. 1 \$15; \$2, \$12,50: \$3, \$10.418 30 \$\psi\$ Shepard Hand Fluter, No. \$5. \$\psi\$ dos \$15.30, \$18 40 \$\psi\$ Shepard Hand Fluter, No. \$10. \$\psi\$ dos \$11. \$018 40 \$\psi\$ hepard Hand Fluter, No. \$10. \$\psi\$ dos \$11. \$18 40 \$\psi\$ hepard Hand Fluter. \$\psi\$ dos \$15.00, \$18 40 \$\psi\$ (Clark's hand Fluter \$\psi\$ dos \$15.00, \$18 30 \$\psi\$ Combined Fluter and Sad Iron. \$\psi\$ dos \$15.00, \$18 30 \$\psi\$ (Sunfalo. \$\psi\$ dos \$10.00 \$18 10 \$\psi\$ Fluting \$Cissors. \$\psi\$ dos \$10.00 \$18 10 \$\psi\$ Fluting \$Cissors. \$\psi\$ dos \$10.00 \$18 50 \$\psi\$ Porks. \$\psi\$ Hanure, &c. Asso, list, \$18 60 & \$10.85 \$\psi\$ Plated, see Spoops. \$\psi\$ dis \$0 & \$60.85 \$\psi\$ Plated, see Spoops.	Magic
J. & Sliev Carr Fatent Solid 11(a) 11, 4 swif Vise and Drill—	10 1/26—10 14: Feb. 98, 1883	Chisels. Scheel Framing and Firmer— Witherby and Douglas P. S. & W. New Haven and Mindlesex Huck Bros Huck Bros Gis 75 @ 75 & 5 & 5 & 6 & 75 & 75 & 75 & 75 & 75	Crown Hand Fluter, Nos. 1 815; 2, 812,50; 3, 810,418:30	Sandusky Tool Co. " " dis 60 5 Hubbari & Co., " " dis 60 5 Hubbari & Co., " " dis 60 6 Grub. " dis 60 6 00 at 10 5 Hug Rings and Ringers dis 60 6 00 at 10 5 Hull's Improved Ringers
New Lightning	F.C.B.&N.CO., Reystone, Fill, list, Oct. *9a.dis *92** O	Socket Framing and Firmer- Witherby and Douglas P. S. & W New Haven and Middlesex Buck Bros. Merrill dis 60&10&10 Merrill dis 80 & 30&5 Tanged Firmers Flicher's Tanged Firmers Spear & Jackson's Tanged Firmers Spear & Jackson's Tanged Firmers Buck Bros. Tanged Firmers Gless Tanged Firmers Spear & Jackson's Cold Chisels Firmers Cold Chisels Gless Chiseks 106 @ 196 Chiseks	Leading Goods. dis 0022 g 0025 g Fruit and Jeily Presses. Enterprise Mfg. Co. dis 20210 a 334 s Henis.	Hill's Old Style Ringers.
Turntable # doz \$5.0 Waverly # doz \$5.5 White Mountain # doz \$5.0 White Mountain # doz \$5.0 76 # doz \$5.5 Augerre and Bits.	0 Plow Glas 65 0 Am. S. Co. Stove, Annealed Glas 70 0 Am. S. Co. Stove, Annealed Glas 70 0 Am. S. Co. Stove Glas 60 0 Am. S. Co. Stove Glas 70 0 Am. S.	Cold Chisels, \$\mathbb{P}\$	₩ dox. \$1.50 1.75 2.00 2.25 2.50 2.75 3.25 3.75 4.25 Sidney Shepard & Co. dis 40×£10 4 Co. dis 40×£10 4 Co. Lo.	
Wm. A. Ives & Co. Humphreysville Mfg. Co. Frence, Swift & Co. (F. H. Beecher).	Boring Machines. Without Augers. Upright. Angular. Douglas	Adjustable, Gray s	1 huges.	**Holders, Tool. # dox \$4 ; dis 25 \$ Hellew-Ware.
Connecticut Valley Mfg. Co	Other Machines. 2.35 2.75 net Phillips'Pat., with Augers 7.00 7.50 net	Carriage Makers', Sargent's dis 665,6210 \$ Ebernard Mfg. Co. dis 40&5 @ 40&10 \$ Warner's dis 40&10 \$ Saw Clamps dis 40&20 \$ Saw Clamps dis 55&0&5 Chipps dis 55&0&5	Marking Mortise, %c dis 00&10 %	Stove Hollow-Ware. Ground.dis.60&10@60&10&5 Stove Hollow-Ware. Ungrounddis.70@70&5 Enameled and Tinned Hollow-Ware. dis 50&10@ Kettles. dis 50&10@ Oval Bollers, Saucepans and Glue Pots dis.30@35 g Gray Knameled Waredis.10@40&5 Agate and Granite Ware. dis.50@5 Rustless Hollow-Ware. dis.50@5 Galvanized Tes. Kettles dis.50@5
Cook's, New Haven Copper Co., dis SORIOGEOSTORE New Haven Copper Co., dis 800 st. dis 800 st. dis 800 st. E. Jennings & Co., No. 10, extension lip., dis 40 st. E. Jennings & Co., No. 30, extension lip., dis 40 st. C. E. Jennings & Co., Auger Bits, in fancy boxes. **P set, 32½ quarters, No. 50, 10, extension lip. dis 60 st. dis	Sargent & Co. h.	Wrought fron Fellos Clips. 5-16	Tinned and Enameled	Inch6 7 8 9 Rach55¢ 60¢ 65¢ 75¢
Car Hita, New Haven Copper Co	Barber's, Nos. 10 to 16. dis 50 \$ Barber's, Nos. 80 to 53. dis 50 \$ Barber's, Nos. 80 to 55. dis 50 \$ Barber's, Nos. 80 to 65. dis 50 \$ Barker's, Nos. 8, 10 and 12. dis 75 \$ 10 \$ 20 \$ Barker's, Nos. 8, 10 and 12. dis 65 \$ 10 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 10 \$ 60 \$ 10 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 10 \$ 60 \$ 10 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 10 \$ 60 \$ 10 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 10 \$ 20 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 10 \$ 20 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 10 \$ 20 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 10 \$ 20 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 20 \$ 20 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 20 \$ 20 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 20 \$ 20 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 20 \$ 20 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 20 \$ 20 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 20 \$ 20 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 20 \$ 20 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 20 \$ 20 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 20 \$ 20 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 20 \$ 20 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 20 \$ 20 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 20 \$ 20 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 20 \$ 20 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 20 \$ 20 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 20 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 20 \$ 20 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 20 \$ 20 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 20 \$ 20 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 20 \$ 20 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 20 \$ 20 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 20 \$ 20 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 20 \$ 20 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 20 \$ 20 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 20 \$ 20 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 20 \$ 20 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 20 \$ 20 \$ 20 \$ 20 \$ Osgood's Ratchet. dis 40 \$ 20 \$ 20 \$ 20 \$ 20 \$ 20 \$ 20 \$ 20 \$	Cecks. Brass.	Sargent's Fatent	
Clark's amail, \$18; large, \$26. dis 25&10 @ French, Swift & Co.	Osgood's Ratchet	Steel Felloc Cips		Raf Iron Bird Cage. Sarrent's list dis 60210210 g Bird Cage. Reading dis 60210210 g Clothes Line. Sargent's list dis 60210 g Clothes Line. Reading list dis 60210 g Celling. Sargent's list dis 60210 g Celling. Sargent's list dis 50210 g Coat and Hat, Sargent's list dis 50210 g Coat and Hat, Sargent's list dis 50210 g Frought Iron dis 50210 g
Clark's small, \$18: large, \$26. dis 35 & 35.65 \$ ives' No. 4, per dos. \$60. dis 35 & 40 65 \$6 40 6 \$ wan's . dis 40 \$ fister's, No. 1, \$26 : No. 2. \$22. dis 55 \$ Honney's Adjustable \$4 dos. \$48 dis 40 \$ fister's Adjustable \$4 dos. \$48 dis 40 \$ fit 20 \$ fit 5 \$ ives' Expansive, each \$4.50 dis 45 \$ 60 \$ Universal Expansive, each \$4.50 dis 20 \$ 6 \$ \$ wod's . dis 25 \$ 6 \$ 6 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	Bartholomewa, Nos. 117 118, 119. dis 70 @ 7045 % Amidon's Barker's Imp'd. dis 60 @ 7045 % Amidon's Rateer Imp'd. dis 60 @ 1045 % Amidon's Rateer Imp'd. dis 70 @ 7045 % Amidon's Universal & dis 40 @ 40410 % Amidon's Universal & 4n, 81,90 10 In. 12.10 Amidon's Purface Rail & 10 @ 81,10 @ 81,10 .	Bemis & Call Co.* Wombe and Co. and Co	Control Cont	Cotton Pas (M. W. Mallet & Wondle Will & dos \$1.25
Wood % Gimlet Bits	P. S. & W	Bradley	Atha Tool Co. A. E. Nati	Wrought Staples, Hooks, &cSee Wrought Goods
41- 404-40	Bright Wire Goods - Regular list dis 75&10 \$ Broilers Inch 9 0 9 x 1 Henis' Self-Basting 1 1 1 1 1 1 Henis' Self-Basting 1 1 1 1 1 Henis' Self-Basting 1 1 1 1 Henis' Self-Basting 1 Henis' Self-Basting 1 1 Henis' Self-Basting 1 Henis' Self-Basting .	Carksecrews. Humason & Beckley Mfg. Co	Hartford Hammer Co. 's Nail Ham's dis 25&10@35 6 8 8 1 8 1 8 1 9 1 9 1 9 1 9 1 9 1 9 1 9	Wire Coat and Hat, Gem, list April, 1886, dis 45 % Wire Coat and Hat. Milee', list April, 1886, dis 45 % Wire Coat and Hat. Milee', list April, 1889, dis 45 % Belt.
Morse Twist Drills	Built Lingus. — Union Co. Nut. dis 56 5	Wadaworth's die 26 c T Cradies Gradies Gradies Gradies Crew Bars \$\psi\$ 384 @ 384 c Iron, Steel Points \$\psi\$ 384 @ 384 c Iron, Steel Points \$\psi\$ 384 @ 384 c \$\psi\$	# dos \$48: Nickeled, \$57; 3 Hands, Polished, # dos, \$72: Nickeled, \$84	DORS and Eyes—Brass. dis 00£10£10 g Herse Nalls. dis 00£10£10 g Herse Nalls. dis 00£10 g Jasable. m m m m m m m m m m m m m m m m m m m
Snell's Nhip Auger Pattern Car Rits dis 15 @ 20 \$	### Bruss	Cradics.	Con. Wrought or Cust.— Door or Thumb. Nos	mex
Awi Haits. \$3.50 \$ gross—dis 40&10 \$ lewing, Brass Ferrule. \$3.50 \$ gross—dis 40&10 \$ lewing, Brass Ferrule. \$1.00 \$ dos,—dis 40&10 \$ lexten bewing, Long. \$1.20 \$ dos.—net leaten Feg. Plain Top. \$10.00 \$ gross—dis 45&10 \$ lexten Feg. Leather Top. \$12.00 \$ gross—dis 45&10 \$ A wis, Brad Sets. &c. wis, Sewing, Common. \$\$ gross \$2.40—dis 35 \$ wis, Shouldered Feg. \$\$ gross \$2.40—dis 40@40&10 \$ \$ wis, Shouldered Feg. \$\$ gross \$2.40—dis 40@40&10 \$ \$ \$ lexten Feg. \$\$ gross \$2.40—dis 40@40&10 \$ \$ \$ lexten Feg. \$\$ gross \$2.40—dis 40@40&10 \$ \$ lexten Feg. \$\$ gross \$2.40—dis 40@40&10 \$ \$ lexten Feg. \$\$ gross \$2.40—dis 40@40&10 \$ lexten Feg. \$\$ lexten Feg. \$\$ gross \$2.40—dis 40@40&10 \$ lexten Feg. \$\$ lexte	Loose Joint Japanned	Beaver Falls and Booth's	Barn Door # dos. \$1.40, dis 10&10 \$ Ch Chest and Lifting	ODe. — ** 200 200 216 219 196 186, dis 1060-65 5 C ** ** ** ** ** ** ** ** ** ** ** ** **
A wia, Brad Sets. &c			Hickory Firmer Chisel, assorted. # gross 4.50 N.J. Hickory Firmer Chisel, large. # gross 5.00 2 Apple Firmer Chisel, assorted. # gross 5.00 2 Apple Firmer Chisel, large. # gross 5.00 2 Apple Firmer Chisel, assorted. # gross 3.00 3 R. Bocket Firmer Chisel, assorted. # gross 3.00 3 R. Bocket Firmer Chisel, assorted. # gross 3.00 3 R. Bocket Firmer Chisel, assorted.	TR.—Concessions on above quotations are frequently made. Hoser Shoes —See Shoes, Horse. Hoser Rubber —
filler's Falls \dj. Tool Hdls., Nos. 1, \$12; 2, \$18.dis 25 tenry's Combination Haft	Fast Joint Narrow	Brass, Fope & Stevens' list	Socket Framing Chisel, assorted. 4 gross 5.00 5 kg J. B. Smith Co. ** Pat. File. 2.76 kg File, assorted. 4 gross 5.00 6 kg Auger, assorted. 4 gross 5.00 6 kg Auger, prossorted. 4 gross 7.00 6 kg Auger, prossorted. 4 gross 5.00 6 kg Auger, prossorted. 4 gross 5.00 6 kg Patent Auger, prossorted. 4 gross 5.00 6 kg Putent Auger, Bwan* 9 set \$1.00 net Prossorted. 4 kg 1	Y. B. & P. Co., Dundee. **Picks.** Chisels. &c. **American lee Chisel. Pol'd. **P dos \$3,00, dis 20 a **tional 'tee Chisel. **P dos \$6,25, dis 20 a **ve.** lee Breakers. **P dos \$4,25, dis 20 a **titler's Sliding Head Picks. **P dos \$2,50 dis 40 a **nlap's Ring Picks. **P dos \$2,00, dis 15 i **pod Head Picks, Sargent's. **P dos \$1,20, dis 50,610 a **n Head Picks, Sargent's. **P dos \$1,25, dis 50,610 a **Mallets, Pick in handle. **P dos \$2,00, dis 15 a **Axes, Small Cast or Mall. **P dos \$1,25, dis 20,210 a **minimation Lee Tools. **P dos \$2,00 nes
rad Sets, No. 22, \$10.00, No. 1, \$7.50, 1. rad Sets, Staniey's Excelsior, No. 1, \$7.50, 0, 1 rad Sets, Staniey's Excelsior, No. 2, \$4.00, 0 A xees. A kees. A kees. Brands— First quality. dos \$6.50 @ \$7.00 Others. dos \$6.50 @ \$6.50 \$6.50 @ \$6.50 \$6.50 @ \$6.50 \$6.50 @ \$6.50	Bronned Wrought Butts	Rubber, complete. \$\Psi\$ dos \$4.50, dis 50\$10 \$\frac{1}{2}\$ dos \$4.50, dis 50\$	Atkins' No. 1 Loop. W pair, 30¢; No. 3, 22¢; No. 2 1ce	ood Head Picks, Sargent's. — \$\psi\$ 0.8 \$1.60. dis 50&10 \$\circ\$ n Head Picks, Sargent's. — \$\psi\$ 0.8 \$1.25. dis 50&10 \$\circ\$ m Head Picks, Sargent's. — \$\psi\$ 0.8 \$1.25. dis 50&10 \$\circ\$ Axes, Small Cast or Mail. — \$\psi\$ 0.8 \$1.25. dis 2.3&10 \$\circ\$ mbination lee Tools. — \$\psi\$ 0.8 \$2.00 nes me 1ce Pick and Tongs. — \$\psi\$ gross \$65.00. dis 50&10 \$\circ\$ ger's L'ghthing Ice Chisel. — \$\psi\$ gross \$28.50
peciai brands. \$\psi \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Nicholson. dis 45&10 \$ Huffer dis 50 \$ Clark's. Nos. 1. 3. 5. dis 80&5 @ 80&10 \$ Sargent's. Nos. 1. 3. 5. dis 80&5 @ 80&10 \$ Sargent's. Nos. 1. 3. 5. dis 75&10 \$ Sargent's. Nos. 12. dis 75&10 \$ Reading's Gravity Shepard's Nosseless," Nos. 50. 60. 66. 65 and	P. S. & W	rn Door, New Englanddis 60&10&10 @ 70 s	ce Touris
ms. 23 to 26	Shepard's "Noiseless," Nos. 50, 50, 50, 50, 40 and 55	1	nith for Wood Track	ettles. Brass. 7 to 17 in. inclusive
Less than 10 sets. dis 33\\ &\ &\ &\ &\ &\ &\ &\ &\ &\ &\ &\ &\ &	Shepard's "Queen City" Reversible dis 75&10 f Clark's Improved Shutter Hinge, Nos. 0, 1, 14, 2, 2, 2, 3, 70 @ 70&5 f North's Automatic Blind Fixtures. No. 2, for Wood \$10.50; No. 3, for Brice, \$13.50 dis 25&2 g	Sreast F. S. av	allenge	tie, Cabinet, Trunk and Padlock
Balances. — Spring Balances. — dis 50 % nmon 24 h. — dis 50 % nmon 24 h. — dis 50 % dos. \$1.50—dis 50 % dis 50 % dis 50 % dis 50 % dis 60 % dis 60 %	Humason & Beckley Mfg. Oodis 30&5 @ 40 % Bradley'sdis 25 @ 30 % 1. & I. J. Whitedis 20&5 % Beatty's	Satchet, Weston's	rry's Patent © dos. pr., 8% in. \$10; 5 in., 12	on's Putcher Knivesdis 25 @ 30 9 es' Butcher Knivesdis 25 p
ind- Light Brass dis 75&10 & 75&10 & 5 Extra Heavy dis 65&10 & 70 \$ White Metal dis 70 & 70&10 \$ Silver Chime dis 25&10&5 \$	New Haven Edge 1001 Co. 1	Note	bod Track, Iron Clad. # ft. 104, dis 50&10 @ 50&15 @ Ame chitect. # set \$6.00, dis 20 g lipse. dis 20&10 @ 50 lips. dis 20&10 g lix. # set \$4.50, dis 20 g lix. dis 20&10 g20&10&10 g chards' dis 20&10 g20&10&10 g ne s Steel Anti-Friction dis 40&10 g	es' Bread Knives # dos \$1.50, dis 20625 \ an's Boce and Bread Knives dis 20 s dell Co., Butcher, Shoe. Bread, &c dis 2523334 g and Straw &ce Hay Knives
20ng, Abbe's	Reserved	Drill Bits.—See Augers and Bits. Drill Chucks.—See Chucks. Bripping t'ans. er 3. 51/4 \$ 51/4 Ers Beaters. \$ 40s., \$2.50	e Ball Bearing Door Hangerdis 20&10 @ 25&10 \$\frac{1}{2}\$ Door Arner's Patentdis 20@20&10 \$\frac{1}{2}\$ Door Arner's Patentdis 20@20&10 \$\frac{1}{2}\$ Door Arner's Anti-Frictiondis 20@20&10 \$\frac{1}{2}\$ Door Utllessdis 40 @ 40&5 \$\frac{1}{2}\$ Door Utlless	le and Pocket
aong Barton's dis 40210 to 503 Frank, Taylor's dis 252:10 5 Frank, Brooks' dis 504:1042 5 Frank, Conce's dis 10 4 Frank Connel's dis 202:10 5 Eaver, Sargen's dis 602:10 5 Eaver, Taylor's Bronned of Plated Ref. 202:10 5 Eaver, R. E. B. De's dis 504:1042 5 Frank Connel's dis 504:1042 5 Frank Frank Connel's dis 504:1042 5 Frank Conn	Sarquine Scissors	Dripping & a.s. 5	ragon, Nos. 1, 2 and 3	######################################
Tull, Brook's dis 50&10&2 % Tull. Western. dis 20&10 \$ (hampira	Trimph (T. & S. Mig. Co.)	at's Broaddis 40 g	riage. Japanned # gross 80¢, dis 60&10 g

December 30, 1886.	
Ladies. dis 55&: Meiting, Sargent's. dis 55&: Meiting, Reading. dis 35&:10	O Pa
Adles. dis 55&: Meting, Reading. dis 55&: Meting, Reading. dis 3&:10 Meting, Monroe's Patent. p dos. \$4.00, is 44 Meting, P. S. & W	% Di % Di % Ra
Lanterus. Tubuiar. No. 9. without Guards	75 A 0 50 25 3r 25 3r 00 Pc
Police, Small, \$6.00; Med, \$7.25; Large, \$9.75. dis20ga- Porter's Fin R. R., \$10 dis25 Lawn Mowers. Standard Machinesdis 50&1 Cheaper Machinesdis 50&10 @ 60	A 25
Cheaper Machines Lemon Squeezers Porcelain Lined, No. 1. # doz. \$6.00, dis 25&3 Wood, No. 2 # doz. \$3.00, dis 30	1 15 1 15 75 15 10 10
Cheaper Machines	76 BC
Little Giant King	% In
Draper's Chalg	A Pi
\$1.75; NO. 5, \$2.25; NO. 4, \$2; NO. 454, \$2.50. dis 56 Samson, Cotton, No. 4, \$2; NO. 454, \$2.50. dis 16 Sirver Lake, Bradded, Nos. 0, \$4.00 NO. 1, \$6.50; NO. 2, \$7.00; NO. 3, \$7.00 Yes, \$7.00; NO. 4, \$2.25; NO. 40, \$2.25; NO. 50, \$7.00; NO. 5, \$7.00; NO. 5, \$7.00; NO. 6, \$7.00; NO	50
Locks, Padlocks, Cabinet Locks, &c. Door Looks, Latches, &c.— dis 45&5 @ 45&10 List, Dec. 18, 1885	% Bu
Cotton. Padlocks. Cabinet Locks. & dis 45&5 & 45&16 Locks. Acabes. & de. — List. Dec. 18. 1885	S Hi
Barnes Mfg. Co. dis 40 Yale Flat Key. dis 50 Dietz Flat Key. dis 30	8 Rt P.
L. & J. Flat Key Latches. dis 83-s&10 Romer's Night Latches dis 90 Yale new list. dis 40	Ca Mo
"Shepardson" or "U. S."	Sta Di
Cabinel— Eagle, Gaylord Parker and List March, '84, revise Corbin	Da Da Da Ro
Detts, Nos. 51 to 63	a Ro
Yales dis 40 Sarnes Mig. Co. dis 40 Sarnes Mig. Co. dis 40 Sagle and Corbin Trunk dis 2562 Company of the Corbin Trunk distribution of the Corbin Trunk distribution dis	R Le
Champion "Cabhet and Combination" dis 25 Romer's dis 25 Pathors Standard list, Dec. 23, 1884 dis 75 @ 75&5	% Ko
ROBET** Standard list, Dec. 23, 1884	Sei Hy
Romer's, Nos. 200 to 505 dis 20 Romer's, Nos. 200 to 505 dis 20 A. E. Dietz dis 40 "Champion" Padiocks dis 33½	% W
"Horse Shoe." & dos., \$9	2 8
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Fraim's Pat. Scandinavian, new list (low)dis 60 Lumber Tools. Ring Peavies, "Blue Line" Finish	W Du
Lumber Tools. King Peavies, "Biue Line" Finish. # doz \$30. King Peaves, Common Finish. # doz \$18. Steel Socket Peavies. # doz \$18. Mail. Fon Socket Peavies. # doz \$19. Cant Hooks, "Biue Line" Finish. # doz \$19. Cant Hooks, Common Finish. # doz \$10. Cant Hooks, Mail. Socket Clasp, "Bue Line" Finish # doz \$10.	00 Jaj 00 Bri 00 Jaj 00 Jaj
Cant Hooks, Mall. Socket Clasp Common Finish	Ha 60 da 10 da
Cant Hooks, Mall. Socket Clasp Common Finish. Finish. Cant Hooks, Clip Clasp, "Bine Line" Fin. # dos \$14.4. Cant Hooks, Clip Clasp, Common Finish. # dos \$14.4. Cant Hooks, Clip Clasp, Common Finish. # dos \$12.4. Band Spikes. # dos 6f., \$15.00; 8 ft., \$2 ft. Pike Poles, Pike & Hook, 12 ft. 16 ft. 16 ft. 18 ft. 20 ft. # doz. #11.50 12.50 14.50 17.50 21.4 dos. 10.00 11.00 13.00 16.00 20.0	00 da tu Ha tu stu
Pike Poles, Pike only, # 10.00 11.00 13.00 16.00 20.00 Pike Poles not Ironed, # 10.00 17.00 18.0	O Pit
Setting Poles, W dos 14.00 15.00 17.00	Sac Bei
wamb Hooks.	io spi
8quare Steel Boot Calks. — dis so Chain Rafting Dogs. — 100, med., \$10.00; large, \$12.0 Ring Rafting Dogs. — 100, med., \$10.00; large, \$12.0	Bo Bo
Kour-onnes bottles \$ 408, \$1.75 ; \$ gro. \$17.00 Bt	t 8116
Mallets. dis 2.0410 Lignum vita. dis 2.0410 Penneld Block Co. Hickory and L V. dis 30 cs 30 cs 10 Mattecks.—Regular list. dis 5045 cs 0042.0	
Mattocks.—Regular list	Vic
Woodrum's	8 Pio
ChampionNos. 230 300 400 # dos. \$25.00 27.00 40.00—dis 45 Hales Pattern.Nos. 11 12 13 # dos\$27.90 35.00 45.00 dis 70&5@7 & 10.5	Ge
Nos	Tot Bac
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Beef Shavers (Enterprise Mfg. Co.1dis 20&10 @ 30	M M M
THE HELD WATER I blade \$7. 9 blades \$19. 9	0.1
Am. (2d Quality, wift). Bell of the blades, \$18	8i N Cut
	Box Lvoi
Chase's Hard Metal	Self Belf
Money Brawers 2 dos. \$18. Muzzles Safety. 2 dos. \$3	Gles Mrs. Ent
Wire Nails, itst ADril 13. 50 4 keg. card rate, \$3.50 Wire Nails, Standard Fenny 4 keg. card rate, \$3.50 Wire Carpet Nails See Tacks	Fox Chir
Giant, NO. Assessment to the day of the day	134
Petican. W dos 850.0 dis 25 g Sos. W dos 850.0 dis 25 g Sos. Nail Sets. Square. W gro, \$6.00 g \$4.25 Round. Nai Grackers. Table (Humason & Beckley Mfg. Co.). W dos 850.0 dis 40 g	Uom Pate Whi
Blake's Pattern	Com Pase Cabi
Nat Crickers	811v
to list. Oaksis.	Silve Sylv Sam
U. S. Navy	Sam Sam
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Prior's Patent or "Paragon" Brass	Attw Read Ham
Broughton's Zine	Com. Com. Univ
N. Y. B. & P. Co., Dundee	Kem
Russia Packing	Bugu and Hugu
Brougnton's Brass	Ives Lieuc
Gill's Light Weight, # dos. 10 13 14 Gill's Light Weight, # dos. 25,75 3,00 3,25 3,75 Gill's Heavy Weight, # dos. 3,00 3,25 3,75 Whiting*s. 2,57 0 3,25 Eidney Shepard & Co. 25,7 3,23 25,7 3,23 3,25	Sa. Solid Sa. Miles
Palls, teatvanized Water, Unarts Clark Water, Unarts Weight, Wdos. \$2.75 8.00 2.25 6111's Heavy Weight, Wdos. 3.00 3.25 8.75 Whiting's 2.75 / 0 3.25 8.50 Whiting's 2.75 / 0 3.25 81dney Shepard & Co. 26.7 3.22 Iroa Clad 3.50 6.00 Fire Suckets 2.78 3.25 8.50 Buckets, see Well Buckets,	Perry Draw Enter

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	Pencils Vaber's Carpenters'. high list, dis 50 g Raber's Round Gilt. F gro \$5.25 ne Dixon's Lead F gro \$4.50 ne Dixon's Lumber. F gro \$6.75 ne Dixon's Lumber. H gro \$6.75 ne	Dis Dis L Dis
5 5 5	Picks. Railroad, 5 to 6, \$11,00; 6 to 7, \$12dis 60&5 @ 60&10	Atl
5	Ticture Nails. Frass Head, Sargent's Hs.t., dis 50%10%10% Grass Head, Combination list. dis 50%10% Forcelain Head, Sargent's Hs.t., dis 50%10% Grass Head, Combination list. dis 50%10% Grass Head, Sargent's Hs.t., dis 50%10% Grass Head, Combination list. dis 40% Grass Head, G	Atl W. W.
200	Vies Patent dis 40 Pinking Irons # doz 65s no Pipe, Wrought Iron 114 and under, Piain dis 35:	Per Per Per Per
1	Pinking Irons # doz 55e no Pipe, Wrought Iron 144 and under, Plain dis 35 144 and under, Galvanized dis 25 145 and over, Plain dis 55% 146 and over, Galvanized dis 35 146 and over, Galvanized dis 35 Boiler Tubes dis 45 Planes and Plane Irons dis 45	Ric Ric Bo; Bo;
00000	Wood Fances— dis 15&2 4 Extra 10 Molding dis 15&2 4 Extra 10 Bench, Sfrst Quality dis 25&2 3 by jobbers Bailey's (Stanley R. & L. Oo). dis 25&2 3	Ro
	Sailey 8 (Stanley R. & L. Co.) dis 20x10	S D WI
-	Meriden Mal. Iron Co.'s Iron Planes	Red Still Still
	Company Comp	Cor Ler Na Ha Ha Her Ber
-	L. & I. J. White. Pliors and Nippors. Button's Patent. Button's Patent. Bull's Pat. Compound Lever Cutting Nippors. No. 2, 5 in. \$13.50; No.4, 7 in. \$21.00 \$\phi\$ dos dis \$20\$\pm\$10\$ a33\$\pm\$4 Humason & Beckley Mfg. Co. dis 60 Gas Pliers. Gas Pliers. Gas Plers.	Ati Ati Ha Dis
	Humason & Beckley Mfg. Co. dis 60 Gas Pilers, Custer's Nickel Plated. dis 60 Gas Pilers, Custer's Nickel Plated. dis 60 & 5 Sureka Pilers and Nipper dis 40 & 5 Russell's Parallel. dis 25 P. S. & W. Cast Steel. dis 50 P. S. & W. Tinners' Cutting Nippers. add 6 \$ dis 10 Carew's Pat. Wire Cutters. dis 20 Morrill's Parallel, per dos, \$12 dis 30 & 5 Plumbs and Levels.	Ati Ati Mo Cro
-	P. S. & W. Tinners' Curting Nippers. add 6 5 dis 10 1 Carew's Pat. Wire Cutters. dis 20 Morrill's Parallel, per dos., \$12 dis 30%5; Plumbs and Levels. dis 70%10/470%10/40 10 10 10 10 10 10 10 10 10 10 10 10 10	Ho
-	Standard List. dis 70&10cg/70&10&10 d10 d10 d10 d10 d10 d10 d10 d10 d10 d	Ha Un Un Chi
	Round or Square, 1 qt	Chi Chi Fai Sca
	Leed's # dos \$8.00 (p \$9.00	1 8
	Vaughan Post Hole. Auger, per doz. \$24.00 Konler's Little Giant. dis 33% 65 3 Konler's Hercules. \$ doz \$18.00 Kohler's New Champion \$ doz \$2.00 Schneider \$ doz \$0.00 Schneider \$ doz \$4.00 Kyan's Post Hole Diggers \$ doz \$4.00 Cronk's Post Bars doz \$60, dis 502.5 \$602.00 Witze Arrers \$ doz \$4.00 \$602.00	Por Shi
	Forato Parers. # doz \$5.00 @ 5.50 Antrim Combination # doz \$5.00 @ 5.50 Hoosier # doz \$13.50 Franting Hooks and Sbears. Diston's Combined Pruning Hook and Saw # dos \$48.00	Dot
	Diston's Combined Pruning Hook and Saw # dox 418.00 diston's Pruning Hook # dex 412.00, dis 20x10 9 E. S. Lee & Co. 's Prunin Tools 418.00, dis 40 9 Pruning Shears House 18 40 5 75 6 14 9 19	Buc Sta Sta Sar
	Alk.00. Disston's Pruming Hook	Sar Sar Sar Kn
	Japanned Side	Cha
	Empire Sasa Pulley	Kol Syr Ser
-	Hay Fork, Reed's Self-Lubricating. dis 60 % Snade Rack. Side Lubricating. dis 60 % Snade Rack. Side Self-Lubricating. Self-Self-Self-Self-Self-Self-Self-Self-	
	Pitcher Spout, Cheaper Goods, dis 70&10 @ 00210320 Pitcher Spout, Cheaper Goods, dis 70&0 @ 70&10&5 Punches. Saddlern' or Drive, good quality P dos 60 @ 654 Hemis & Cali Co.'s Cast Steel Drive dis 50&5 &	R R FI
	Pitcher Spout, Cheaper Goods, dis 70 & 9 70 & 10 & 5 Punches. Saddiers' or Drive, good quality. — dos 60 e 65 Bemis & Call Co.'s Cast Steel Drive. — dis 50 & 5 Bemis & Call Co.'s Springfield Socket. — dis 50 & 5 Bemis & Call Co.'s Springfield Socket. — dis 50 & 8.50 g \$2.50 g	Marking R. Ben Be
	Rail. Sliding Door. Wrought Brass # D 35#,dis 20425 S sliding Door. Broased Wrt. Iron # foot 7# sliding Door Iron. Palated # foot 4#, dis 2021025 S darn Door, Light Inca. 16 Sh. Jorn. R. Bangers— Small Med. Large.	Be Be H Lau Coa
	Per 100 feet. \$1.50 8.00 4.40—dis 10 s 8, D. for N. E. Hangers— Small. Med. Large Per 100 feet. \$2.15 2.70 3.25 net Perry's Wrought Iron, 5 \$\psi\$ foot	Har Har Har Jac
	Visor Tree Rail. 7s + foot	Jac Jac Be Len Ros
	Genuine Emerson	Cit
	Torrev's	Gra Si Ge Ci
	Imitation Emerson	Br Cl In In No
		Ame Pru Bar
	Manila	Sey: Heir Heir Firs
	Sisal, Single Ply Lath Yaru	Seco Acm Dias Clip
	NOTE,—Lower prices on kope are made for export. Cutton Rope	Cle Sid
	Boxwood dis 80&10 @ 80&10&10	M. B. Co Pa Pa
и	Enterprise Star Irons new det July 30 1890 de 40 d	B. Sa
	Combined Fluter and Sad Iron. \$\psi\$ doz, \$15.00, dis 15 \$\$ to x Reversible, self-Fluter \$\psi\$ doz, \$20.00 net Enimese Laundry (N. E. Butt Co.). \$\psi\$ self-\$\sqrt{g}\$, dis 15 \$\$ sew Encland \$\psi\$, dis 16 \$\$ to \$15 \$\$ mand \$\text{Paper}\$ and \$\text{Emery Paper}\$. Sam Encland \$\psi\$, dis 15 \$\$ sex \$\text{Encland}\$ \$\psi\$, dis 16 \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$	Re Bh L. & Albe
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2000000	able Laid Halian " # \$ 229 a 239 adia Cable Laid Halian " # \$ 229 a 239 adia Cable Laid " # \$ 137 dilver Lake A Quality White	DY
N Port	forris and Triumph, list Aug. 16, 1880dis 50&10 s	
0	ommon Sense. Japannon. Cupperer and Bronzed gross	Be
TOMBRO	emosball's Gravity. dis 60 s emosball's Model. dis 60 s emosball's Model. dis 60 s orbin's Daisy, list February 15, 1886. dis 70 s ayson's Perfect. dis 50 s 10 s 50 s 10 s 50 s	HE
HBI	ugunin's New and Improved Adjustable Saan Rai ances, list March, 1885. ugunin's New Sash Locks, 186 March, 1885. dis 33% jugunin's New Sash Locks, 186 March, 1885. dis 33% jugunin's New Sash Locks, 186 March, 1885. dis 33% jugunin's Parentsial dis 55 lesche's Nos. 100 & 110, 9 gro, 55; 105, \$10. dis 50kl o ; Naas Weights. Naas Weights. \$ 100 lots. \$ 100 lots. \$ 100, \$25.50	IN
E.	Carried to Street out at Little 18.	7
d	The second secon	

Beauty Circular, Mill and Cross Cut dis 402.10 Distors Hand, Panel, Hip, &c dis 500.10 Station Circular of Distors Y Cuts dis 500.10 Station Circular of Distors Y Cuts dis 500.10 dis 60 dis 60 dis 60 dis 60 distors Hand, Panel, Hip, &c dis 50 dis 60 dis 60 distors Hand Y Cuts dis 60 dis 60 dis 60 dis 60 dis 60 distors Hand Y Cuts process of the Cuts proc	ĺ	H	E	1.	R	0	N	A	G	E
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Secria Peans, Custer.		AR C SC TET IS	c mrcmr				DE	T GOE SE	ers #6.00) l
Adjustable Box Scraper (8. R. L. Co., 16.50, dis 20.5 18		scale Be	ams. C	unter.				dia 90	ica 3914 9	
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Filat Head Iron		Doug.as	MIR CO		*****			Alla 200g	10/8:10 4	
Filat Head Iron		Sargent Sargent Knapp & Knapp & Knapp & Sets inte Cnampic Clarg's F	& Co.'s & Co.'s & Co.'s Cowle Cowle Cowle Cowle rchangon	Nos. d No. do %' No. %' No. % No. (eable.	D & St D. Rou 1 1 Ext 00 &), Cae nd B	t Steel laded d lis \(\psi\) doi	dis 00disdis 00dis 00dis 50dis 50dis 50dis 30dis 30	396410 9 50410 9 80410 9 9 60410 9 50410 9 dis 25 9 dis 25 9	27
Round Head, From		Kilirich's Aliard's Kolb's C Syracuse Screw Di Screw Di Fray's H Bore w Wood So Flat H	Socket Spiral, ommore Screw river B river B ot. Hdl	and in sense la Sense	tatche ist er Bita irr's i, No.	3, \$12	dis	11s 25 @ 18 dis 30 & 20 & 25 @ 25	25&10 9 dis 25 10 9 25&10 9 30&5 9 9 6 75 0 0 6 22 5 & 10 9	48777
Bench, Wood, Beech Bench, Wood, Hickory Bench, Wood, History Bench, History Be		Round	Head.	Iron.	******				dia 00 1	J
Social Completes St. 00		Bench as Bench, Bench, Bench, Hand, Lag or Co Coaca, P. Bed Hand Ra	Wood, Wood, Wood, Wood, atent G	Beech Hicko	Poin	d	in 55&1	0 @ 55& # de din 10 @ 254 in 70&16 din	10&10 g on \$2,26 20&10 g £10&5 q 0 @ 75 g 70&10 q	
Set or Waldron, in Straw		Hand Ra Hand Ra Jack Sere Jack Sere Jack Sere Herer, c Hogers, c	di, Hundi, Am. ews, Miews, P. ews, Sa banwiompier	Screw Hers I S. & V rgent e, \$10. te, \$4.0	Heck V Co. Falls V	ley &	Uo. 8	dis 70&: dis 50 @	10@75 9 dia 70 9 50&5 9 dia 35 5 110&5 5 dia 25 9	Y
American (Cast Fron dis 75&10 @ 75&10 @ 55 hoers Fruning See Pruning Hooks and Shears Charnard's Lamp Trimmers See Pruning Hooks and Shears Charnard's Lamp Trimmers & dis 20&2 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$		Germai	n. Clast	or Sti	rar St	xed i	e snar	p W de	M \$8.90	18
Howe from & Hulbert. Solid Forged Steel. dis 40 % Cleveland Machine Co., Solid Steel Forged.dis 60&10 % Sheaves dis 40 % Sheaves dis 40 % Sheaves dis 60 % d		Bush, B Clover. Imperformers, Note.— Jobbers.— Scythe Shear	ect Gra ect Gra ect Gra The al who give e Sant	and in	Weed Bust Prices	are f	requen	F de	oz \$6,70 oz \$6,70 oz \$7,00 oz \$5,00 oz \$6,70 ded by	ACCCCENT
Si. at E. Hat Dec. 18, 1885. dls 60&10&2 s E.		Howe Bro	on. & H	ulhert	. Solfe	Por	red Ste	el. dia 7	b&10 %	BCCTLPLBSL
Albertson Mig. Codis 25 4		M. W. & B. & E Corbin': Patent Patent Russeil' Moore's Sliding Si B. & E.	t Co., ii list D s list koller. Roller. 's Anti- Anti-F huifer 's list Dec	Hatfie Friction 18, 1	18, 1 1886 Id's on, lie	885 t De	c. 18, 1	dis 60& dis 60& dis 60& dis 60&	45&2 \$ 60&2 \$ 10&2 \$ 10&2 \$ 10&2 \$ 10 \$ 25 \$ 11 \$ 60 \$ 10 \$ 10 \$ 10 \$ 10 \$ 10 \$ 10	Et Et
	1	Albertson	MIN. C	0	******			0	18 25 4	SI

E .	
Shoes, Horse, Mule, &c.	T
Shees, Horse, Mule, &c.	Ste
Mule-Add \$1 \(\psi \) Keg to above prices. Ox, Wrought-	She
Ton lots. # m 9¢ 1000 m lots # m 9½6 500 m lots # m 1½6	Sni Sta
Shevels and Spades. Ames' Shovels, Spades, &c., list Nov. 1, 1885dis 20 % Note.—Jobbers frequently give 5 @ 71/4 % extra on	Ple
NOTE.—Jobbers frequently give 5 @ 7 1/4 % extra on above.	Jap
Griffith's C. S	Ent
Old Colory	Nas
Hubbard & Co	Cli Act
above. 9rimth's Black Iron	Wo Rei
Rowland's Steel dis 60 @ 60&10 %	Rei
Drop, ₩ bag, ō 1b	Sha Pay
100 Head	Ga.
Western list	NO
Buffaio Metallic. S. S. & Co., new listdin 50&25 \$ Barier Flour Sifters # doz \$2.00	Mo M
Sieves, Wooden Rim- Iron. Plated. Mesh 18, Nested. W doz	M
Mesh 24, Nested. # doz	M
Sieves S	I C
Hotchkiss	Lor
German, old list	Per Cle
Covert, New Patent. dis 50&2 & Covert New R. E. dis 50&2 %	Bre
Covered Spring	Ga
Spoke Shaves - Iron	Bu Pe
Stearns' dis 30&10 @ 30&10&10 % Spoke Trimmers.	No
Stearns' \$\(\phi\) dos \$10.00, dis 50 \(\preceq\$\) 1 ves' No. 1, \$15.00; No. 2, \$12.00 \(\phi\) dos, dis 55&10 \(\preceq\$\)	No
Covered Spring	No.
Basting, Central Stamping Co.'s list dis 331/22 \$ Solid Table and Tea, Central Stamping Company's	Ma 2-P
list	3-P 3-P Cot
Meriden Brit. Co., Rogers	2,2
Rogers & Bro	Pa Cot
Holmes, Booth & Haydens	Pai
Silver-Plated	8
German Silver, Hall & Eiton	H
Elliptic, Concord, Platform and Half Scroll	T
Squarrs	8 8
Disston's Try Square and T Heveisdis 45&10 \$ Winterbottom's Try and Miterdis 20&10 \$ Staples.	P
Staples Galvanized	San B
Steelyards	S. H
Stone. Hindostan No. 1, 3\(\psi\): Axe, 4\(\psi\): Slips, 5\(\psi\)	V C
Hindostan No. 1, 34g*: Axe, 44g*: Silips, 54g*.	Bau
Washita Silps, No. 1. Extra. # b, 47 @ 48¢	N
Arkansas Stone. No. 1, 4 to 6 in	Sm: Joh
Turkey Oli Stone, Chase	Api Bon
Lake Superior Silna. # B, Slo32# Stove Polish. Joseph Dixors. # gro \$6.00, dis 10 g Gem. # gro \$6.00, dis 10 g Gem. # gro \$6.00, dis 25 "Mirror" # gro \$6.00, dis 25 Lustro. # gro \$6.75 net Ruby # gro \$75 net Rising Sup, 5 gro. lots # gro \$75 net	Bte
Gem. # gro \$4.50, dis 10 \$ Gold Medal. # gro \$6.00, dis 25 \$	BIL
Mirror	Wh Wh
Rising Sum, 5 gro. lots	Irus
Parlor Fride Stove Enamel	M. M. M.
Yates Standard Paste Polish, 10-lb cans, per lb., 15 ¢ Jet Black	M. St.
Japanese	80
List, Sept 1, 1889, and supplement. Jan. 1, 1886, American fron Tacks. Carpet	Ti Al
Swedes Iron Carpet Tacks	Brai
Swedes Iron Tacks	Wir Mai Cast
Swedes Iron Upholsterers' Tacks. dis 70 st Tinned Swedes Iron Tacks. dis 70 st Tinned Swedes Iron Tacks. dis 70 st Tinned Swedes Iron Upholsterers' Tacks. dis 70 st Ginp and Lace Tacks dis 60 st 10 st 10 st 70 st Tinned Ginp and Lace Tacks. dis 60 st 10 st 10 st 70 st Tinned Ginp and Lace Tacks. dis 60 st 10 st 10 st 70 st 10 st	Stee
American Iron Cut Tacks	Piet Bari Wir
Copper Financia and Frank Sans. dis 50 & 60 & 5 & 5 Finishing Salis. dis 55 \$ Finishing Salis. dis 55 \$	No.
Trunk and Clout Nails	Bax
Basket Nails	Bax
Tinned Capped Trunk Nails	Coer
Tinned Trunk and Clout Nails. dis 60 6	Gira Gira Lan
Silvered	Lan
Japanned. dis 20&10&10 % Walkiey Hardware Co,'s Steel Carpet Tacks;	Bem
Lining and Saddie Nalis, List Jan. 1, 1880; Silvered d.dis 30&10&10 & 1 Japanned. dis 20&10&10 & Walkiey Hurdwore Co.'s Steet Carpet Facks: Diam ind Brand. & doz 12¢; tinned, 16¢ Circle Brand & doz 24¢; tinned, 2¢ Horse Shoe Brand. uniform wis., 12¢; tin'd, 30¢ Ho 5-case lots. dis 10 &	Bem Bem
In 5-case lots	Atke The Web
Wire Carpet Nails	Boal Alw Allip
Horse Shoe Brand.double unif'm wts., "22; tin'd, 30e In 5-case lots	Acm
Enterprise Mrg. Co	Acm Wal
Tapes, Measuring.—American	
Thermometers.—Tin Casedis 80 @ 80&10 \$	Stap

3.75	Thimble Skeins.—See Skeins. Ties, Bale. Steel Wire, Standard list
90	Ties, Bale. Steel Wire, Standard list dis 50&10 % Tinners' Shears. &c. Shears and Snips(P. S. & W.) dis 20 @ 25 % Punches—See Punches. Snips, J. Mailinson & Co. dis 33½ % Tinware
10¢	The ware Stamped, Japanned and Pieced, Central Stamped, Japanned and Pieced, Central Stamping Co., list June 1, 1886. Extras some Pieced, S. S. & Co. dis 333/4 % Extras some Pieced, S. S. & Co. dis 333/4 % Extras some Pieced, S. S. & Co. dis 333/4 % Extras some Pieced, S. S. & Co. dis 333/4 % Extras some Tobacco Cutters Pieced Co. Pieced C
0 %	Japanned, S. S. & Co
10 % 30 % 30 %	Wood Bottom
0 % 2. 10 %	Chipper (sargent & Co.). # 405 \$25, 318 5000, dis 40 \$4 Transom Litters. # 405 \$20.00, dis 40 \$4 Transom Litters. # 405 \$20.00, dis 40 \$4 Wollensak's Parasit iron Bronged. dis 50 \$4 Rether's Improved Self-Locking (Class 301). dis 45 \$4 Rether's Improved Set Screw (Class 201). dis 55 \$4 ### 45 #
10 %	Rether's Improved Sett's-Locking (Class 301) - dis 45 % Rether's (Improved Set Screw (Class 201) - dis 55 % Rether's (Class 101) - dis 65 % Rether's (Class 101) - dis 65 % Oktuber's - dis 50&10&2 % Shaw's - dis 46&10 % Oktuber's - dis 46&10 % Oktuber's - dis 40 % Crown and Star - dis 50 %
37¢ 10 %	
16 % 15 %	Newhouse dis 35 @ 40 t
2.00 ted.	Mouse, Wood, Choker
0 65 %	Game, Blake's Patent
65 % 10 % 50 % 10 %	Cyclone F gross \$5.25 Trewels Lothrop's Brick and Plastering dis 30 @ 30&5 \$ Reed's Brick and Plastering dis 15 \$
75 % 10 % 12 % 12 %	Lothrop's Brick and Plastering
10 % 10 %	Brade's Brick
45 % 30 % 10 %	Butter and Cheese. dis 25 % Trucks, Warehouse, &c. Penfield Block Co.'s list, 1882. dis 40 % Tubes. Boiler.—See Pipe. BC. B.
50 % 10 % 10 %	Penfeld Block Co.*s list, 1882 dls 40 % Tubes Boller See Pipe. HC. B.
20 % 20 %	No. 36, "
22 %	2-Ply Hemp, 4 and 4 m Balls (Spring Twine). 124 3-Ply Hemp, 1 m Balls. 125 3-Ply Hemp, 14 m Balls 1156 Cotton Wranning, 5 Balls to m. 146
5 % 5 %	2, 3, 4 and 5 Fly Jute, 14 Balis
0 % 10 % 50 %	T SOME BOALL THE THE STATE OF THE SURE TORES %
10 % 55 % 10 %	Faratlel
10 \$	Bonney's. dis 40 % Millers Falis dis 40 % 40 & 10 \$
10 % 10 % 10 %	Sargent's
1940 1940 10 %	Simpson's Adjustable
10 % 25 %	Parker's
226 17¢	Cowell Hand Vises
13¢ 45¢ 38¢ 1.50 1.75	Washer Cutters. Smith's Patent.
60¢ 2.00 17¢ 32¢	Penny's
0%	Wedges.—Iron # 5 3½€ Steel # 5 3½€ Well Buckets, Gaivanized B 3½€ Hill's # doz .12 at. \$3.50 : 14 at., \$4.50
net net	Appletou
100 \$13 11s	
5 ¢ 150 150 150	Market. Tinned. Tinned list, Nos. 0 to 18. dis 60æ10 % Stone Bright and Annealed, Nos. 16 to 18. dis 60æ5 % Stone, Bright and Annealed, Nos. 19 to 26. dis 65æ10 % Stone, Bright and Ann'd, Nos. 97 to 36dis 723eæ6 %
6.	8tone, Galvanized. Nos. 19 to 30
5%	Annealed Grape, Nos. 10 to 14
0%	Main's Spid. Wire, 1 6, 9 5 2 3 5 5 18. 4021025 5 Cast Steel Wire
5 %	Wire Clothes Lines. See Lines. \$ 1000 \$0.00, dis 25 s
5 %	Wire Goods,—see Bright wire Goods, Wire Rope.—List May 1, 1886
0 6	Baxter's Diagonal dis 40 @ 10&10 €
****	Coes' Pattern, Wroughtdis 80x10680x1025 t Girard Standarddis 70x10 t Girard Agriculturaldis 80x1026 t Lamson & Sessions' Engineers'dis 60x10 s
0 %	Lamson & Sessions' Standard dis 702 to 5 Lamson & Sessions' Agricultural dis 802 106, 802 1025 \$ Sterling Wrench, Wroughtdis 802 106 802 106 502 1025 \$ Bemis & Call's Patent Combination dis 302 5
6¢ 2¢ 6¢	Hemis & Call's Merrick's Pattern
90	A'ken's Focket (Bright)
*	Alligator dis 25&5 Alligator dis 50 g Donobue's Engineer dis 25 g Acuse Bright dis 60&3 @ 60&10 g
7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Acme, Bicycle, 4½ in. dis 45 t Walkers die 0023 die 0023 die 0024 die 0023 die 0023 die 0023 die 0023 die 0023 die 0023 die 0024 die 0023 die 0023 die 0023 die 0023 die 0023 die 0023 die 0024 die 0023 die 0024
8	Whiting's Wired Top Weil Wheels—sin., \$1.75; 10 in., \$2.05; 12 in., \$4.00 Weil Wheels—sin., \$1.75; 10 in., \$2.05; 12 in., \$4.75 Wire Fron— Market. Br't & Ann'ld. Nos. 0 to 18

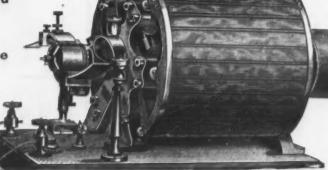
Nickel-Plating and Polishing Materials. Sole Manufacturers OF Established 1863. Incorporated 1881. THE

THE AMERICAN YNAMO ELECTRO-PLATING MACHINE.

est Plating Machine in the Market.

EADQUARTERS FOR EVERYTHING

THE PLATING AND POLISHING LINE.



Largest Manufacturers IN THE WORLD OF Nickel Anodes, Nickel Salts, Patent Muslin Buffs, Polishing Lathes,
Polishing Felt,
Polishing Rouges,
Pol'ng Compositions,
Walrus Leather, Wood Emery Wheels. Platers' Brushes, &c., &c., &c.

Lucker & Levett Chemical Co., 538 to 564 W. 16th St., 36 to 40 11th Ave., NEW YORK, U.S.A.

WHOLESALE METAL PRICES, December 29, 1886.

WHOLESALE	METAL PRICES, D
METALS. ***THONDury: Bars, 8-10¢ to 11-10¢ *** b: 1 vided that no Bar Iron shall pay a less rate of d than 85s. Sheet, 11-0¢ to 15-10¢ *** b. Band, H ard Scroll, 1¢ to 14-10¢ *** b. Railroad Bars we	LEAD.—Dury: Pig. \$2 \mathbb{\mathba\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
Standard American Pig Iron.	Shot, # bag, 25 m Drep, \$1.50; Buck, \$ Chilled Shot, # bag, 25 m\$
Foundry No. 2 X	9.75 American, cash
Garisburie	0.00 0.00
Steel at Eastern miles	.00 N. P. U. \$9 10 61/4 (2). 3.25 X X X X X X X X X X X X X X X X X X X
Common Iron: 34 to 2 in. round and square 1 to 6 in.x% to 1 in	Wist R.
Refined Iron: \$\frac{1}{2}\to 2\tin.round and square. \\ \$\frac{1}{2}\to 2\tin.round and square. \\ \$\frac{1}{2}\to 6\tin.x\frac{5}{2}\to 1\tin\\ \$\frac{1}{2}\to 6\tin.x\frac{5}{2}\to 1\tin\\ \$\frac{1}{2}\to 6\tin.x\frac{5}{2}\to 1\tin\\ \$\frac{1}{2}\to 6\tin.x\frac{5}{2}\to 1\tin\\ \$\frac{1}{2}\to 2.40 \tin.2.40 \ti	100
Common R. G American Cleaner Ses. 10 to 16 W to 2.6 @ 2.70 ¢ 314¢ 21 to 24 W to 3.72 ¢ 314¢ 25 and 26 W to 3.72 ¢ 35 ¢ 25 and 26 W to 3.72 ¢ 35 ¢ 25 and 26 W to 3.372 ¢ 35 50 25 ¢ 26 W to 3.372 ¢ 35 50 25 ¢ 26 W to 3.372 ¢ 35 50 25 ¢ 4 ¢ 26 26 27 26 27 27 27 27	Nos 16 17 18 19 20 21 22 23 24 25
Calvanized to 20	Cast Steet, Steel Wire list
Russia	All Nos. to No. 16, inclusive \$0.22 \$0.26 \$0.36 No. 17 and 1823 .273282732837359936
From Wire.—(See Fire.) STEEL.—DUTY. Ingois, Bars, Sheets, &c., valued at 4¢ \$\pi\$ \$\mathbb{D}\$ or less, 45 \$\pi\$ ad. val.; valued abov 4¢ and not above 7¢ \$\pi\$ \$\mathbb{D}\$, \$\pi_2\pi_4\pi\$ \$\mathbb{D}\$ is valued abov 10¢ \$\pi\$ \$\mathbb{D}\$, \$\pi_3\pi_4\pi\$ \$\mathbb{D}\$ is valued abov 10¢ \$\pi\$ \$\mathbb{D}\$, \$\pi_3\pi_4\pi\$ \$\pi\$ b. Extras.—Sheet Bars, Rod &c., cold hammered or polished, in any way addition to ordinary hot rolling, 1\pi_4\pi \$\pi\$ in addition to above; Steel Circular Saw Plates, 1¢ \$\pi\$ in addition to the above.	All Nos. to No. 16, 10, 122 \$0.25 \$0.26 \$0.36 \$0.35 \$0.70 \$10, 17 and 18. 93 97 87 98 98 98 98 98 98 98 98 98 98 98 98 98
American Cast Steel. For American Steel, see Pittsburgh quotations.	1 14 91 K1 K5 (8
Chrome Steel, foo Steel, ordinary sizes, \$\frac{1}{2}\$ to \$\frac{1}{2}\$ inches, net	\$\vec{q}\$ \ \begin{array}{cccccccccccccccccccccccccccccccccccc
English Steel	Spring Wire, 2 cents per pound advance. White end Wire, 3 cents per pound advance. Flat, Square and Half-Round Wire, 4 cents advance on Round Wire. Fancy Wire, not less than 10 cents advance or Round Wire. Spooling on one-pound Spools, 15 cents per pound extra. Spooling on ten-pound Spools or more 2 cents per pound extra. MINCRLLANEOUS TINNERS STOCK.
2d quality 2d quality 2d quality 2D 1836 TEN,—Dury Plates, Sheets, Tagger and Terne 1¢ \(\mathbb{W} \) B; Bars Block and Pigs free. Banca \(\mathbb{W} \) B 28 4 \(\mathbb{W} \) 23 6 (23)6 Stratts \(\mathbb{W} \) D 283/4¢ (23) 6 English \(\mathbb{W} \) D 283/4¢ (23) 6 Bar \(\mathbb{W} \) D 24 4 (2) 25	Solder
Charcoal Tin Plates.	In bulk, new list, Dec. 10, 1881dis, 45 \$
I C 10x14 225 sheets.	American Screw Co.'s
C 10x14 Biest Ordinary C 10x14 S4.50 S4.55 S6.55	Sizes. 1st. 2d. 3d. 4th.
Terne Piates. Terne Piates. Prime Char. 3d. quality I C 14x30 M.F. \$6.50 \$13.25 C 14x30 Old Process 6.60 I C 20x35 \$4.50 @ 4.75 4.37) 4.25 X 14x30 5.15 @ 6.00 I C 20x35 875 @ 9.30 8.40 @ 8.70 I X 90x38 11.00 @ 12.90	25 6 x 8 to 10 x 15. \$11.50 \$10.50 \$10.00 \$9.50 40 11 x 14 to 16 x 24. \$13.00 \$12.25 \$11.50 \$10.75 \$10.75 \$10.75 \$10.80 \$10.75 \$10.80 \$10.75 \$10.80 \$10.75 \$10.80 \$10.75 \$10.80 \$
I 1 20x2811.00 @ 12 00 Tin Boiler Plates. 1XX 14x16, 2 sheets for No. 7, 112 sheets @ \$12.00 1XX 14x26, 2 " " No. 8, " @ 13.00 1XX 14x31, 2 " " No. 9, " @ 15.00	Double Thick.
COPPER.—DUTY: Pig. Bar and Ingot, 4#: Old Copper, 3# \$10. Manufactured (including all articles of which Copper is a component of chief	
Tagot, Lake	257 6 x 8 to 10 x 15. \$14.00 \$313.00 \$13.00 \$12.25 40 11 x 14 to 14 x 24 17.00 16.00 15.25 14.50 50 18 x 22 to 20 x 30. \$22.00 20.50 19.00 54 15 x 36 to 24 x 30. \$24.00 22.00 90.00 60 25 x 25 to 24 x 35. \$26.00 24.00 21.75 70 25 x 36 to 25 x 44. \$27.50 257.00 22.50 80 25 x 44 to 30 x 50. \$30.00 28.00 24.50 84 30 x 52 to 30 x 54. \$31.50 29.00 36.00 96 30 x 54 to 34 x 56. \$33.00 30.50 25.00 91 34 x 35 to 34 x 56. \$35.00 34.00 31.00 100 96 x 60 to 40 x 60. \$35.00 36.00 34.00
Sheets, one side, 10, 12 and 14 x 48each, 8¢ Sheets, one side, other sizes \$\psi\$ square foot \$2\psi\$e For timing both sides, double the above prices. For tinning bother sizes, \$\psi\$ in, \$14 x 50 \cdots\$each, \$15\psi\$e For timing bother sizes, \$\psi\$ in, \$14 x 50 \cdots\$each, \$12\psi\$e For timing bother sizes, \$\psi\$ in, \$14 x 50 \cdots\$each, \$12\psi\$e For timing bother sizes, \$\psi\$ in, \$14 x 50 \cdots\$each, \$12\psi\$e For timing bother sizes, \$\psi\$ in, \$14 x 50 \cdots\$each, \$12\psi\$e For timing bother sizes, \$\psi\$ in, \$14 x 50 \cdots\$each, \$12\psi\$e For timing bother sizes, \$\psi\$ in, \$14 x 50 \cdots\$each, \$12\psi\$e For timing bother sizes, \$\psi\$ in, \$14 x 50 \cdots\$each, \$12\psi\$e For timing bother sizes, \$\psi\$ in, \$14 x 50 \cdots\$each, \$12\psi\$e For timing bother sizes, \$\psi\$ in, \$14 x 50 \cdots\$each, \$12\psi\$e For timing bother sizes, \$\psi\$ in, \$14 x 50 \cdots\$each, \$12\psi\$e For timing bother sizes, \$\psi\$ in, \$14 x 50 \cdots\$each, \$12\psi\$e For timing bother sizes, \$\psi\$ in, \$14 x 50 \cdots\$each, \$12\psi\$e For timing bother sizes, \$\psi\$ in, \$14 x 50 \cdots\$each, \$12\psi\$e For timing bother sizes, \$\psi\$ in, \$\psi\$e For timing bother sizes, \$\psi\$ in, \$\psi\$e for timing bother sizes, \$\psi\$e for time \$\psi\$e for	Sizes above—\$15 per box extra for every 5 inches. Discount 75, 10&5 @ 80 s. PAPER STOCK. &c. (Dealers' Selling Prices.)
Sheathing Copper. (14 x 48.) Hot Cold.	Mill Assorted Writes
Thining, Cents each. Copper Bottoms. Pits and Flats, 14 oz	Seconds, City No. 2
14 and 15 oz. and heavier. 279 By the case. 1 12 oz. and lighter	Buriap Bagging, No. 1 1% 1% 1%
and 16 oz. and heavier	8oft White Shavings, No. 1. 2%
Copper Wire, —(See Wire,) Sheathing Metal. eflow Sheathing Metal, w b	Begus Manilas and Hardwares, cwi. 60 6 100 Commons, v 100 B. 65 75 Fin ters' Board Cuttings. 65 6 75 Fin ters' Board Cuttings. 65 6 75 75 FAINTS. OILS, 650
Old English Gauge the Standard for Wire,	Black Lamp—Cuach Painters' B B @ 846 Ordinary B B @ 846

Old English Gauge the Standard for Wire,

ass Manufacturers' Price Lass, January 17,

dis. 20 6 0:

Mack Ivery Drop, fab.

N	METAL F	'KI	ÜŁ	3,	U	e
	LEADDury: Pi	g, \$2 9 3¢ 9 I	100 lb	; Old	Long, 2	se .
ty h	Tin Lined Pine				496 @ 6 534 @ 5 40. dis 10. dis 10. dis	17/ 51/6 20 20 20 20
00	Shot, # bag, 25 m Chilled Shot, # bag, 2 ANTIMON 1. Hallett's	Di to th	rep, \$1	.60 ; B	uck, 81	1.8
90	SPELTER—Duty \$ 100 lbs. American, cash	Pigs,	Bars s	and Pla	ites, \$1	5.5
75 50 75 75	# 100 lbs. American, cash Bergenport ZINC—Duty: Pig o Sheet. 21/4 # B B. 600 lb casks	r Bloc	k, \$1	5.4	100 l	70e
50 50 75 60	Sheet. 25g w m. 600 bc cases. Zinc.—Open Zinc Tubing Zinc Ti Plain Fancy Scotch and Extra Patt	bing	—Dis.	dis. 25 %.	10 @ 2	0 1
10	Scotch and Extra Patt BABBITT MEX N. P. U. X. X. J. B.			30 Th	816 0	74
10	Witte. Warket Wire. Nos. 00 to 9, 10, 11,	-Put u	p in 68	15, 16,	dles.	18.
9 0	Wlite R. Nos. 00 to 9, 10, 11, Bright Market Wire Charcoal Bale Wire. Nos Grape Wire. Nos Grape Wire. Nos Coppered Market Wire Bale Wire. Nos Galvanized Market Wire Fence Wire. Stone or Wichele	76 0 1	1236	14	15 dis 67% dis 47% dis 62%	16 %
	Annealed Market Wire "Fence Wire, No "Grape Wire. No Coppered Market Wire "Bale Wire. N	s. 8 and s. 10 to	19. di	sd	is. 62%	* *
	Galvanized Market Wir Fence Wire Stone or	Veavi	ing V	Vire.	57 14	6%
	"Fence Wire Stone or " Nos	9 20 9 20 10 81 12 38	21 22 21 22 82 88 85 87	28 2 84 86 40 46 dis. 7	4 25 : 5 36 : 5 55 : 0 6 70	26
	27 to 36	wi	re.	7	5 @ 75	XX
	Brass and Old English Gauge th	Copp le Stan	er W	Vire. Dis 20	@ 25.	*
1	Brass and Old English Gauge th	Comm Hig Bras	on h B	Low	Bronz and Copper	Se .
1	All Nos. to No. 16, inclusive	\$0.22	8	0.26 .27 .28	\$0.8 .8	0 1 2
	4 21 4 99	. 35 . 96 . 28		.29 .39 .30 .32 .34	.8 .8 .8	4 6
	4 25	.82		. 18.00	.4	0 3 6
	27	. 107		.46 .49 .52	.5 .5 .6	4
	** 31	.50		.55 .59 .63 .68	.83	3 2
	44 36 44 87	1.00		.74 .80 1.04	1.80 1.50 1.70	0
	4 39	2.00		1,84 2,00 2,60	2.00 8.82 5.73 White	5
e ave cs	Spring Wire, 2 cents p med Wire, 3 cents per po nd Half-Round Wire, 4 Vire, Fancy Wire, not le tound Wire. Spooling ents per pound extra, pools or more 2 cents p	ound ad cents as than on on Spoo	vance. advar 10 cen ie-pour oling o	Flat, ace on to adve ad Spo on ten tra.	Square Round ance or pols, 19 pound	
ш	LINCELLANEOUS	BAN	O BURE	D. D.Y.	oun.	
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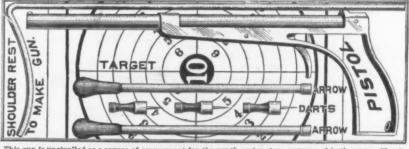
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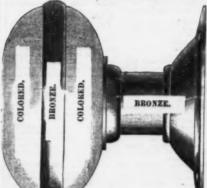
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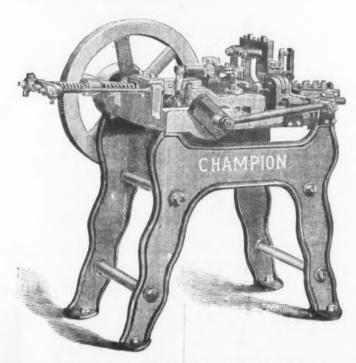
MECHANICAL.

The Champion Wire-Nail Machine. P. D. Nicols, of 8 Wood street, Pittsburgh, Pa., is putting on the market a new wirenail machine of which we present an engraving. Though somewhat similar in general spearance to other machines of the same class, it is claimed to embody some new and valuable features. These are found mainly

into the oil channel already referred to.

This felt is extended into the oil chamber.

As the pulley revolves on the sleeve the oil is drawn from the chamber. Among the advantages of this lubricator the following. are mentioned: There is no waste of oil in its use, as the pulley draws from the cham



NEW WIRE NAIL MACHINE, BUILT BY P. D. NICOLS, PITTSBURGH, PA.

spiral-spring header. The adjustments, face is increased two and one-half times. however, are claimed to be so simple that As the pulley does not run on the algebras. the cutters in much less time than with other machines. The gripping lever crosses the machine at right angles to its length in front of the heading block and is clearly shown in the cut. The arrangement of the spiral spring header also will be readily understood from the engraving.

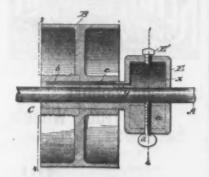
Turning Gear of the Engines of the Great Eastern.

Referring to the improvements recently made in connection with the machinery of the Great Eastern, we take the following par-ticulars from a long article in the London Engineer, describing the vessel's trip from Liverpool to Holyhead. They relate to the turning gear for the main engines:

As originally constructed, says our con-temporary, an enormous cast-iron coupling unites the two crank-shafts—which are 24 inches in diameter—in the center. This coupling is fitted with teeth, into which gears an eudless screw on a vertical shaft. To the top of this was fitted a tiller, and when the engines were to be turned the endless screw was put into gear, and, blocks and tackle having been hooked on to the tiller, the fall was led to a winch and the tiller was pulled through a given angle, so far rotating the main engines. Then the tiller was pulled back to its original position and another haul made. In this way the main engines were caused to make a revolution in three days, from six to eight men being employed. To turn the engines once round employed. To turn the engines once round cost in wages alone £4 10/ (\$22.50). A complete revolution can now be made in 20 minutes at a cost of a few pence. In an out-of-the-way corner Mr. Jackson found a on this subject seems to be very scarce; out-of-the-way corner Mr. Jackson found a large donkey fly-wheel pump which had been used to supply the boilers removed to make room for the forward cable tanks. This engine was taken to the fitting shop on the upper deck and carefully overhauled. The pump was removed and the engine was then put up in the engine-room. A long shaft was led from it to the vertical endless corner to the head of which the tiller hefore. shaft was led from it to the vertical endless screw to the head of which the tiller before mentioned was keyed. The tiller was retween any puffs of wind that would tend to disturb it, and the angle could then easily below the starting platform, a cogged wheel in which gears an endless screw on the horizontal shaft. Steam is supplied to the donker with present the content of the property holies. engine from a high-pressure Cornish boiler, and so the donkey turns the main engines without any difficulty. The whole of this gear, with the exception of one endless screw and one cogged wheel, was made of materials found on board the ship, the cost of this west improvement hains. of this most important improvement being altogether only a few pounds.

Loose-Pulley Lubricator.

E. & F. Gleason, of Philadelphia, are bringing out a loose-pulley lubricator, as illustration of which we annex. The let



Loose Pulley Lubricator, Made by E. & F. Gleason, Philadelphia, Pa.

ter B represents the pulley, C the sleeve, H-inch at 145 pounds giving the maximum E the collar end of the sleeve and a the oil channel is indicated by letters b and c; a is the solid part of the collar for the screw. The chamber is filled through the hole E, and the oil is drawn to the pulley by means of felt which is fitted

letters b and c; a is the solid part of the does not seem to vary according to any law relatively either to the pressure or size of nozzles.

Taking the mean of the two extremes we

this device

The Method of Gearing Traction Engines.

A new method of gearing a traction en gine has been introduced by an English firm, Messrs. Eddington and Steevenson, of Chelmsford. Upon the crankshaft there are two pinions, one for the quick speed and one for the slow. The small pinion is next one of the main bearings, the brass of which is carried outward into a recess bored part way through the pinion, so as to bring the pressure directly on the bearing.
The small pinion is keyed firmly on the shaft, while the large pinion is attached by feather keys working in grooves in its boss.

The single pinion is attached by the property of the property o The pinion itself is bored large enough to slide over its companion and completely envelop it. The wheel into which these pinion gear is carried on a long eccentric stud mounted in bearings on the face of the fire-box. When it is desired to chauge from slow speed to quick this stud is rotated and carries the wheel completely out of gear with the small pinion. The large pinion is then slidden forward and comes into gear with the wheel in its new position.

Taper of Steam Jets.

In a paper entitled "Taper of Steam Jets," published in the last volume of the "Proceedings" of the Engineers' Club of Philadelphia, Mr. Geo. R. Henderson says: tages--it could be taken instantaneously be-tween any puffs of wind that would tend to sizes for the nozzles were screwed, pointing upward.

The camera was so located that the jet was seen on the ground glass projected upon a sheet-iron stack, painted black, which was about 12 feet in the rear, the camera being about 12 feet in front of the jet. Three sizes were experimented with-4, 1/2 and % inch openings. The nozzles were made of gas-pipe % inch larger size than the opening, the ends being swedged down to the size, tapered in about ½ inch of the length. The pressures were 95 and 145 pounds per square inch. The location was tolerably well sheltered from the wind, and the exposures were made when the air was comparatively quiet.
As will be noticed in the photographs the sides of the jet are almost perfectly straight lines. The angle was determined by drawing lines on the prints corresponding with the sides of the cone, bisecting this angle, and then measuring off two ordinates from and then measuring of two ordinates from this center line a certain distance (2 inches) apart. The difference of the ordinates divided by the distance between them (2 inches) gave the natural tangent of half the

inches) gave the natural tangent of half the angle of the cone.

With ¼-inch nozzle and 95 pounds pressure the half-angle was 11° 19′; ½-inch nozzle, 95 pounds, 11° 39′; ¼-inch nozzle, 95 pounds, 13° 5′; ¼-inch nozzle, 145 pounds, 10° 54′; ½-inch nozzle, 145 pounds, 10° 54′; ½-inch nozzle, 145 pounds, 11° 27′.

It will therefore be seen that the greatest difference between any two was little over

difference between any two was little over 2°, the 34-inch nozzle at 95 pounds and the 32-inch at 145 pounds giving the maximum

Longitudinal Grooving in Locomotive Boilers.

Referring to a recent locomotive baller explusion on an English colliery line Engineering says:

It is of interest to note that this is the fifth explosion which has occurred within the last three years from locomotive boilers made by the same firm and all from precisely the same cause—viz., grooving at the edge of the overlaps of the longitudinal seams in the barrel. The cause of grooving is perfectly well understood It always takes place when an alternate hinging or buckling action occurs in the presence of a corresive feed were. In I agreeable of Carriele feed water. In Lancashire and Cornish boilers grooving action is generally confined to the end plates in the vicinity of the furnace tube angle irons, where it is not as a rule dangerous, and results in little inconvenience beyond that due to occasional repairs. In locomotive boilers the longitudinal grooving is caused by the alternate buckling action consequent on alterations of pressure which takes place when the barrels are not truly circular. This is always the case when the longitudinal joints are of the ordinary overlap form. If the barrels be made truly circular then the buckling action disappears. The remedy, therefore, is simple enough. It is to make the longitudinal joints with double butt straps, so that the true circle may be maintained. This is the method now adopted by nearly all the leading railway companies, and we are not aware that longitudinal grooving is ever met with where the double butt joint is used, while we have certainly never yet had to record a single case of explosion. This fact is very in structive

Double Horizontal Boring Machine

We show in our engraving on this page a double horizontal boring machine built by F. H. Clement of Rochester, N. Y. It is intended for that class of work in which two holes are to be bored at the same time—as, for example, doweling, chairwork, cabinet-work, carwork and other similar cases. The two spindles are mounted in an adjustable head which swivels around one of
them, so that they may be set at an angle
and its extreme lightness. The chucks,
from the horizontal line of the table, as shown

the operations of some of these peat-cutting establishments may be gathered from the fact that the three firms of Morozoff, Zimnik and Kuznetsoff, have at present at work more than 8000 men on their bogs. The machines for cutting the peat are supplied chiefly by Moscow, although a few come from Belgium and Germany. Attempts have been made to burn the fuel on the railways, but not with sufficient success to warrant its adoption on a large scale.

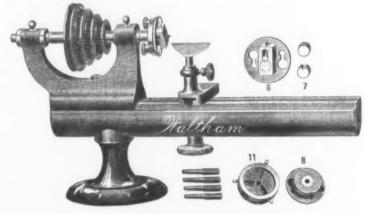
A New Watch-Makers' Lathe.

Waltham, Mass., have just brought out a new tool, known as the Waltham lathe, which we show in the annexed cut.

The length of bed of this lathe is old nches, and the hight of head from the top

center-pin, instead of being attached to a rigid frame, is attached to the driving-wheel truck frame, which is itself pivoted at a center bearing. Both ongine and tender are carried upon the same rigid frame, but a marked peculiarity and divergence from previous methods is that, while the cylinders are attached to the main frame, the groups of wheels to which they impart motion are carried by a separate and swiveling frame, so that on curved portions of track the longitudinal axes of the cylinders and the truck frames are parallel. In order to allow for The Waltham Watch Tool Company, of Yaltham, Mass., have just brought out a ew tool, known as the Waltham lathe, hich we show in the annexed cut.

The least of the forward ends of the for the main connecting and tension rods are pivotally connected to the brasses, so as to



NEW WATCH MAKERS' LATHE.

Made by the Waltham Watch Tool Co., Waltham, Mass

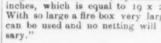
the chuck body, and the bearing part where it passes through the upright of the lathe head is made with two straight tapers. spindle enters from behind, and the back end is supported in an adjustable step bear-

of bed to spindle center, 2.09 inches. The allow of a horizontal vibration, while at the forward end of the spindle is sufficiently same time the brasses may be filed or keyed elongated to form an adequate support for up without affecting this movement of the rods. An arrangement of a similar character is applied to the eccentric rods for the same purpose.

ame purpose.

The piston-rod crossheads are not connected directly to the crank pins by connecting-rods, but act through an intermediary system of levers, which not only allows of the swiveling of the truck frames with-out interfering with the transmission of power, but also permits a crank-pin stroke greater than that of the pistors, and consequently a reduced pistor speed relatively to a given speed of the driving-wheels. The crossheads carry pivoted to them vertical rocking levers, to the lower extremities of which are attached connecting-rods leading to the crank pins of the center pair of wheels which they drive. The upper ex-tremities are connected with the corresponding extremities of similar levers of equal size oscillating on journals in boxes tached to the main frame, and placed but a short distance from the crosshead levers, with the centers on the same horizontal axis as these. To the lower extremities of these secondary levers are attached tension rods which at their other ends are fastened to pins on the truck frame, so that as the points of attachment to the truck frame move back or forward as the truck swivels on the curves the forward end of the main connecting-rod is moved to a corresponding extent by means of the crosshead lever. The driving wheels under the tender are driven in a similar way, the power being transmitted from cylinders bolted to a casting which forms the foot-plate.

The boiler is of the ordinary straight type, but the fire-box, being between the two truck frames, is not restricted in width. In regard to this form of engine Mr. Johnstone writes: "I am now making drawings of an engine embodying these principles, but with only two cylinders and six wheels connected and two four-wheel trucks under the tank. I wish to try and introduce this lighter engine for freight and heavy passenger service, as it is more generally adapted for all roads having heavy traffic than the larger engine. The main object obtained in this design is a very large fire box, which is suspended without overhanging. The fire-box of the engine I am now designing will be 6 feet long and 8 feet wide, cylinders 22 x 18 inches, which is equal to 19 x 24 inches. With so large a fire box very large nozzles can be used and no netting will be necessary."



An important addition has been made to the assortment of cutter heads manufactured by Samuel J. Shimer, of Milton, Pa F. W. Johnstone, superintendent of motive-power of the Mexican Central Railroad, has designed a four-cylinder engine for hauling trains over mountain grades. The article is shown in an engraving which

Dado and Grooving Head.



DOUBLE HORIZONTAL BORING MACHINE.

Built by F. H. Clement, Rochester, N. Y.

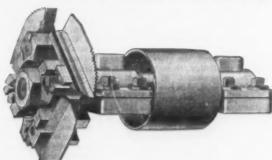
from the horizontal to a perpendicular and to of work equal to a set of at least 30 to 40 45° beyond the perpendicular. The table split chucks. vertical movement on jibbed ways and a forward and back movement also on jibbed ways. The intermediate gear is mounted on a radius arm, so that it always retains an even mesh with the central spindle. By slacking a nut the gear may be thrown out of mesh with both spindles, so that a single spindle may be used at any time without running the gearing. The frame is cast in one piece and is strong and well proportioned. The spindles are of steel, and the bearings, are carefully scraped and fit-The gear and pinions are cut and matched together, so that they run without backlash or rattle.

Peat Fuel.

An official report recently published in Russia states that the use of peat as fuel in factories is rapidly on the increase. The start to the industry was given a few years ago by the establishment of a peat-cutting orks at the Paltseff Crown forest, in the Government of Orel. When this prosuccessful others were inaugurated and let out to private firms, and now the Government has relinquished them wholly to the latter. Last year 28 Crown bogs were being worked on leases, the area being about 6000 acres. This year the number has increased to 33, with an area of nearly 50,000 acres, containing peat to the estimated extent of 40,000,000 Russian cubic fathoms. describes it as follows: The largest consumption of peat fuel is at

in the cut. The range of adjustment is working, will, it is claimed, cover a range

A Four-Cylinder Locomotive



NEW DADO AND GROOVING HEAD.

Made by S. J. Shimer, Milton, Pa.

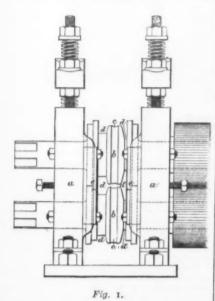
use of wood and relying solely upon hesion to driving-wheels placed under fastest speed. The Cuite a mania exists just now for it. An ordinary four-wheel truck is that the bits can be

escribes it as follows:

It is a new departure in locomotive de like. The work done by it, the manufacturer present in the Province of Viadimir, where sign, the weight of the ender being assures us, is perfect. There are no ragged the principal manufacturers are giving up utilized for the purpose of giving addissing addissing and all is smoothly cut even with the The construction is such expanded for wider peat bogs, and the price has risen to such placed under the smoke-box and another grooves or contracted for narrower grooves an extent that a bog is worth more than the under the deck, these secondary trucks in an instant. Each set of bits will work best timbered forest. The magnitude of being pivoted in the ordinary way, but the nearly double the thickness of a single bitwill make a groove 15 inch, or they can be set to work at any intermediate width—that is, from ½ inch to 15 inch. Each piece is provided with a gauge, carefully fitted, which shows the position at which to fasten the bits, and also the angle at which to file them—an important convenience which will be generally appreciated by the trade.

Rolls for Straightening Careened Rails.

Capt. William R. Jones, of the Edgar Thomson Steel Works, has introduced successfully rolls for straightening careened steel rails. In rolling rails it often happens that as the rail comes from the finishing pass its head will be bent or careened over to one side, so that when the rail is laid and joined the fish-bars will not fit on both sides Owing to the prevalence of thin webbed rails the guides, while preventing twisting,



often careen the rail. Then the fish-bar may fit on one side against the web and fail to touch the head and flange, while on the other side it may fit tightly on the head and flange and lack $\frac{1}{16}$ inch or more of touching the web. Rails of this sort make poor joints on the tracks, and because of their unfitness discharge at the open end.

for example, a set of bits ½ inch wide each will make a groove ½ inch, or they can be set to work at any intermediate width—that is, from ½ inch to ½ inch. Each piece sides of any given rail the same, but to make each rail uniform with the others, and if the size of the fish plates be constant there will be no difficulty in making perfect joints on the track

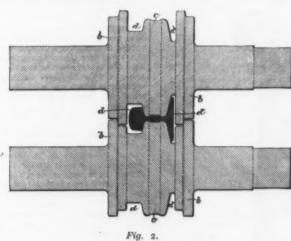
Writing Paper.

Paper was first made in England in 1498, at Dartford, Kent, by one Tate. White paper was first made in that country by French Protestants in 1688-90. The first paper mill was arise made in that country by French Protestants in 1688-90. The first paper mill in this country was at Germantown, Pa., in 1693. To show the value of paper at that time, it may be stated that one of the partners sold out his one-fourth interest for an annual return of seven reams of printing paper, two reams of writing paper and two reams of blue paper. The second mill in this country was at Elizabethtown, N. J., fol-lowed shortly after by others in the Massachusetts colony. In 1732 an attempt was made in the British House of Commons to suppress the manufacture of paper in the colonies as "detrimental to the trade, navi-gations or manufactures of Great Britain," but this attempt seems to have been un

successful.

Writing paper and book paper not only appear to be different, but they are made of different materials. Writing paper is made only from rags, while book paper is made from waste paper. The processes of the manufacture are, however, similar. The materials for good writing paper are cotton and linear rags of dynastic supplies. and linen rags of domestic gathering, supplemented by importations. The rags come to the mill in bales, and are assorted in several grades and then cut into pieces by hand The cutting is done by girls and women, sitting in front of a bench, to which is fixed a short blade like a small scythe blade. The rags, picked up by the handful, are drawn across the keen edge with great rapidity, the operator occasionally using a sandstone rifle, just as the mower does, so that the dusty room resembles, to the ear, a field of busy mowers. At a second sorting all the buttons, pins, hooks and eyes and harsh seams are removed. The rags then go to a duster, a large cylinder of woven wire, inside of which is a shaft carrying a number of blades of plate iron set in a spiral form on the shatt and revolving at a rate of speed higher than that of the outer cylinder. This difference of speed, with the spiral setting of the blades, insures a constant stirring up of the rags

The dusted rags then go into a rotary



rail is shown in Fig. 3.

In practice Mr. Jones runs the rail as it

leaves the finishing rolls on to a table, where its ends are sawed off. It is then passed through the rolls shown in the drawings, where a represents the housings and b b the rolls. These rolls are provided with



right 3.

From this other the rags pass to a cleansing engine which is a tank of oval plan, the walls of which rise about 30 inches from the desired shape of the fish-plate space on one side of the rail—i. e., the space included between the inner sides of the head and flange and defined by their inner angles of the tank far enough to leave a space of the same width as that between the partition reaching toward the walls of same width as that between the partition's same width as that between the partition's sides and the tank far enough to leave a space of the same width as that between the partition's sides and the tank far enough to leave a space of the same width as that between the partition's sides and the tank far enough to leave a space of the same width as that between the partition's sides and the tank far enough to leave a space of the same width as that between the partition's sides and the tank far enough to leave a space of the same width as that between the partition's sides and the tank far enough to leave a space of the same width as that between the partition's sides and the tank far enough to leave a space of the same width as that between the partition's sides and the tank far enough to leave a space of the same width as that between the partition's sides and the tank far enough to leave a space of the same width as that between the partition's sides and the tank far enough to leave a space of the same width as that between the partition's sides and the tank far enough to leave a space of the same width as the same flange and defined by their inner angles of divergence from the web. At the sides of the tongues c c are grooves d d, the grooves d forming an opening for the head of the rail, but of somewhat larger area than the cross section of the head, while the grooves d form an opening for the flange, though of larger area than the cross-section of the flange. As the rail is passed between the flange. As the rail is passed between the flange, and if the rail is careened the tongues bend the head or flenge, or both, so as to reduce the rail to a symmetrical shape, as will be understood, the enlarged spaces d and d affording room for the flange or head to be straightened up the required degree. The drawings for the flange or head to be straightened up the required degree. The drawings show the spaces d and d consisting of grooves inclosed by collars on their outer sides. These, careened and the flange is properly at right angles to the web it is possible to employ a roll wherein the space for the head is larger than its area in cross section. larger than its area in cross section, so as to permit it to be straightened up, while the space for the flange is no larger than its area in cross section. So, also, if the head be normal and the flange be careened, it is possible. of the head. The rolls are simple and easily of the head. The rolls are simple and easily of the head of the rolls are simple and easily of the head of the rolls are simple and easily of the head of the rolls are simple and easily of the head of the rolls are simple and easily of the rolls are simple are simple and easily of the rolls are simple and easily of the rolls are simple and easily of the rolls are simple and easily of the Edgar Thomson Steel Works has demonstated lish, and it finds a market in this country at mission.

A cross-section of such a careened shown in Fig. 3. on journals, one of which is hollow and admits steam at a pressure of from 40 to 60 pounds to the square inch, corresponding, according to Regnault's tables, to a heat of from 292° to 308° F. With the rags is introduced a certain quantity of limewater to assist in the cleaning, the object being to start the color as well as the dirt, for white writing paper is made from color as well as writing paper is made from colored rags as well as from white rags, only the finest note writing paper is made from white rags, only the finest note well as from white rags, only the finest note the tables themselves. The new min will be and letter paper being made from clear the tables themselves. The new min will be and letter paper being made from clear pushed to completion as rapidly as possible, white rags. These rotating boilers are of a and is expected to be ready by September, and is expected to be ready by September, and is expected to be ready by September, and cartainly by October, 1887. Carnegie, white rags. These rotating boilers are of a capacity of a charge of rags weighing from 4000 pounds upward. The boiler is usually rotated by means of a worm-wheel on its place is securely packed.

From this boiler the rage pass to a cleans-

mal and the flange be careened, it is possible to make the space in the roll for the head of the same area as the area of the cross-section slight bluing has the same clear white that

the South, where clear white paper is not desired. The bluing material is called "ultramarine," but it is not the true ultramarine, which is made from the mineral lapis lazuli, but it is made from silicate of soda, alumina, sulphuret of iron and sodium, or carbonate of soda. This is mixed, in powdered form, with the bleached "balf stuff," and the pulp then goes to beating engines which are similar to the cleansing en-gines just described. When the pulp is ready to be made into paper it looks like a milky fluid, and does not show a fibrous character except on close examination. Writing paper was formerly made by hand, the workmen dipping a square sieve in the pulp and depositing the film on a piece of felt. This slow process is not altogether obsolete, but it is employed for some purposes still. Mainly, however, it has been superseeded by the Fourdrinier machine, named for its inventor, a Frenchman. It may properly be called a "congeries" of machines, as it per forms various duties and is so large that generally it occupies a building constructed specially for it, being 6 feet wide and 75 feet long, sometimes of larger dimensions.

The pulp is pumped into an elevated tank from which it is fed to the engine by a delivery gate capable of close adjustment, as upon the amount of pulp fed to the machine de-pends the ultimate weight of the paper. The pulp flows on to the face of a roller and is passed to an endless apron of fine wire sieve passed to an endless apron of fine wire sevet that has imparted to it a jarring motion, to discharge as much as possible the water, while the sieve retains the almost impalpable pulp. A set of rolls compresses the pulp web, which then goes over a series of boxes perforated on the side over which the web perforated on the side over which the web persons the boxes heing exhausted of air by the boxes are the box passes, the boxes being exhausted of air by a five Board." The house rent and price of a fan as the web moves. This withdraws fire coal were left to be settled at each the surplus water that has not been removed works independently, but the secretary by the sieve and rollers. The sheet having acquired considerable tenacity is dried by passing between rollers heated by steam.

Then comes the sizing, without which the waived. closest textured paper would not receive ink and not spread a blot. The size is the common glue of commerce made from rawhide of cattle, but it is employed hot and quite thin. A second partial drying, edging of the continuous web by rotary shears, and a cutting across into sheets, completes the operations of turning liquid, milky pulp into elastic, continuous sheets of a substance almost mpermeable to air.

From "the machine" the sheets, still damp from the sizing, are removed to drying lofts, and are dried by sun and outer air in pleas ant weather and by steam heat in inclement weather. They are then subjected to the action of hydraulic presses. They are then calendered by means of a machine of rolls, three of chilled iron and two of paper. The paper rolls are formed of disks of thin ma-nila paper, cut in presses to diameter, with noles through their centers for the reception of the shaft. These are pressed in place by a hydraulic machine and turned like the iron rolls. The surfaces of the turned paper rolls are remarkably smooth. The shee s, after ironing in the calender machine, are cut in reams by a knife similar in form and action to that of the French guillotine. The sheets are then sorted and counted, the somewhat defective ones going to an inferior grade of paper. The company's stamp is embossed on each sheet under a press. Ruled paper on each sheet under a press. Ruled paper has its lines made in a machine that is essentially self-acting. The ink is more fluid than that used for writing. The ruling pens are of sheet brass, and are semi-cylindrical tubes fed from a whole tube, to which the ink rises from a trough by means of wicks, as oil in an ordinary lamp. The packing in boxes supplements all this work, and the sheets are ready for the market.

A New Armor-Plate Mill.-According to a statement by a Pittsburgh newspaper Carnegie, Phipps & Co., Limited, are now preparing plans for a new mill to be built at their Homestead works, which will be capa ble of rolling the largest-sized armor plates named in Secretary Whitney's advertisement for bids. Ingots weighing 50 or to tons can readily be made at the new open-hearth plant now approaching completion, and con-tracts will soon be let for the additional cranes necessary to place ingots of this size and certainly by October, 1887. Carneg Phipps & Co. have found that there will solid journal and a worm-screw, and it is charged through a manhole that when in place is securely packed. dinary trade will require, they will have a mill better adapted for rolling armor plates than any other mill now in existence. The plans, which have been drawn up only in their general outline so far, have been their general outline so lar, have been designed by Julian Kennedy, general super-intendent for the firm, and Henry Aiken, the assistant superintendent. They have also been submitted to Capt. W. R. Jones, of the Edgar Thomson Works, who has given his hearty approval to them, so far as they are completed. The quantity of armor plate now called for by the Government is about 5000 tons, and the largest-sized plates will weigh about 40 tons, so that the new mill will be fully capable of doing the work. When this mill is completed this firm will have two thirds of the plant necessary to make armor plate ready to go on the vessel. Thus, if they make a contract with the Government, it will require a comparatively small expense to make this plant complete for turning out the finished armor

> The Edison Electric Company, of New York, has flied II suits at Trenton, N. J., against Westinghouse, Church, Kerr & Co., against westingnouse, church, here & Co., of Pittsburgh, for alleged infringement on Edison electric light patents. The contest promises to be a legal fight for supremacy, which will have a national celebrity. The "three wire system" is one of the infringements complained of, which consists of two feeding wires and a return wire for both. feeding wires and a return wire for both making a great saving in both wire and glass. The Edison Company state that Westinghouse & Co. have appropriated this valuable invention and are using it now in Pittsburgh and other places without permission. It is said that this is but the

initial suit of a number which will bring the entire question of incandescent lighting be-fore the courts, and some of the most emi nent counsel in the country have been retained on both sides. A fight has already been made in England on the same subject, in which the Edison Company came out victorious, and they are therefore encouraged to press the same suit more vigorously in the United States. Injunctions have been the United States. Injunctions have been asked for preventing Westinghouse, Church, Kerr & Co. from using any and all of the Edison appliances for fitting out electric lights. As the Westinghouse Company will contest the matter to the bitter end, a spirited litigation may be looked for.

The Coke Troubles Adjusted .- At a meeting at Pittsburgh of representatives of the coke syndicate, of the Knights of Labor the coke syndicate, or the Kingars of Laborers' Associa and of the Miners' and Laborers' Associa tion, the differences pending were adjusted. The syndicate made the following propo-sition, which was accepted by the representatives of the labor organizations: agree to make the following advances, take effect January 1, 1887: To pay track layers the same price as the haulers in the same mine—namely, \$2 and \$2.10 per day; to reduce tool sharpening to 40 cents per month; to advance the price of mining 5 cents per 100 bushels; to pay heading price for turning rooms; to take under works independently, but the secretary claims for the men's Joint Executive Board

The Baltimore Sun of December 6 says "The model of the old Peter Cooper loco-motive, the first in use on the Baltimore and Ohio, and the little 'grasshopper' engine, which was at the Philadelphia Centennial Exhibition in 1876, were on Saturday placed in honorable retirement in the directors' room at the Central Building of the Baltimore and Ohio Company is the city. These interesting examples of the locomotives of more than 50 years ago re turned last week from New Orleans, where they had been on exhibition."

Old Metals, Rags, &c.

The purchasing prices offered by dealer are as follows : Heavy Copper ... Light Copper ... Copper Bottoms Brass, Heavy ... Brass, Light Composition ... \$6,09 .0714 .0634 .063 .04 .0334 .0334 .0334 .0334 .000 9.00 9.00 14.00 6.00 Composition. Lead. Heavy. Tea Lead . . . Zinc . . . Ten read Trees Tre .03% .04% .04% .04% .01% .01% .01% .01% .01% .01% .02% .02% .03% .04 Mixed Rags.
Gunny Bagging, No. 1.
Jute Butts.
Book Stock
Newspapers
Waste Paper
Kentucky Bagging.
Kentucky Bale Rope.
Kentucky Bagging

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Gibbs Lawn Rake Co., CANTON, OHIO, U. S. A SOMETHING NEW. DON'T PLACE YOUR ORDERS FOR Lawn Rakes, Post Hole Diggers, Potato Diggers, Etc., have first seen our New Catalogue, upon application. IT WILL PAY YOU. NEW YORK AGENT CHRISTIE ROMAINE, 99 Chambers St. CHICAGO AGENT, F. R. MYERS, 54 Dearborn St.

Swift Sight Feed Lubricator



A. ALLER, NEW YORK

109 LIBERTY ST.,

"THE DETECTIVE Burglar Alarm."

Patented in this and other Countries. Patented in this and other Countries.

May be applied to any door or window in a few seconds. When the door is opened or the window raised the Alarm falls to the floor, exploding a No. 32 biank cartridge.

Packed complete with four cartridges, weight 6 owners.

Endorsed by Hon. Win. B. Smitter, and Philiadelphia, Lame James A. Stewart, the of Police. A. Stewart, he of Police. A. Stewart, having improved the Alarm and are now manufacturing them in large quantities, we are prepared to quote lower prices than heretofore—viz.. \$2.00 per dozen, or \$20.00 per cross; so charge for boxing or cartage.

Sample sent by mail on receipt of six cents. We furnish handsome gift signs and frames with every order. 110 Grossold in the past year Owned and Manufactured by Spencer E. Carr & Co.,

MOULTON'S Improved Lemon Drill. Patented June 28th, 1886 Will extract the LAST DROP of juice from large and small lemons in free seconds. ent by mail on receipt of 15 cents; \$1 per doz. Cash with order. Agents wanted. Ask your jobbers for them. Address patentee and

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W. F. MOULTON, Burlington, Vt.



Iron and Rubber Truck Wheels.

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Swivel and Stationary Casters, Trucks, &c, 64-PAGE CATALOGUE FREE.

GEO. P. CLARK, BOX X. Windsor, Locks, Conn.

THE WILLINGTON SOLID EMERY WHEEL.

Special care has been taken in the manufacture of this Wheel to avoid danger from bursting and secure uniform density. It is a free and rapid cutter, and a desirable Wheel for persons whose work requires a Wheel to run as cool as possible when run dry. It makes a clean, brilliant cut, which will be found desirable for many classes of work. THE WELLINGTON EMERY WHEEL CO., 103 North 10th Street, Philadelphia, Pa.

MANUFACTURING.

Iron and Steel.

The furnace of the Girard Iron Company

weeks. During the stoppage extensive repairs will be made.

has 1202 square feet of heating surface giv-

steadily increasing.

ing 186 horse-power.



Wrought Iron. Anti-Friction.

IT EXCELS ALL OTHERS

Security of Door. Strength of Material. Ease of Motion. Simplicity of Application.

THIS HANGER

Requires no Oil. Has no Flanged Wheels. Packs Snugly for Shipment. SELLS BEST.

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Gate City Stone Filter Co.,



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UNION PORCELAIN WORKS, GREENPOINT, N. Y,



This open cut represents our Stoneware Filters in operation, showing the Stone Disc through which the water is filtered,

wages will be increased 10 per cent. These Filters have Mr. Lewis Jones, for 10 years manager of the Ætna Iron and Steel Company, of Bridgeport, Ohio, has resigned his position.

gratifying success.

The nail factory of the La Belle Iron Works, at Wheeling, W. Va., turned out 8054 kegs of nails week before last.

them substantial pecuniary backing if they will raise the amount above mentioned. So far the projectors of the enterprise report

The officers of the Kemble Iron Com

pany, of Riddlesburg, Pa., have informed their employees that after January I their

A charter was granted at the State De-Novelty Mfg. Company, of Pittsburgh, with a capital of \$25,000. The shareholders are Christian J. McKee, James A. Cooper, Samuel L. Barndollar, Herman Steger and D. B. Taylor.

Machinery.

J. L. Walker, foreman of the shops of Logan & Strobridge, at New Brighton, Pa., has recently been granted a patent for a new wagon seat.

The E. Horton & Son Company, of Windsor Locks, Conn., write us that their business is constantly increasing. They are adding new sizes and styles to their list of chucks, and are putting in some new special tools and machinery in anticipation of increasing business during the coming year.

The W. F. & John Barnes Company, builders of foot and steam-power machin-ery, of Rockford, Ill., inform us that they find their export trade with the Spanish-American markets so largely on the increase that they are obliged to have a Spanish edition of their catalogue, which is now under way.

A certificate of incorporation has been granted to the Sleigh & Smith Rotary Engine and Mfg. Company, of Parkersburg, W. Va., which propose to manufacture and sell the Sleigh & Smith rotary engines, and deal in all kinds of machinery, engines and boilers, fixtures and supplies, and to carry on a general reput business. on a general repair busin

At Pratt & Whitney's, Hartford, Conn. numerous important orders are being renumerous important orders are being received and others are in prospect which will keep the works busy for the coming year.

Recently a cable order was received from a prominent English firm for about 50 autoprominent English firm for about 50 auto-matic screw machines, this being the second order for a like number received from this firm during the last eight months, and it will probably be still further increased soon.

Schleicher, Schumm & Co., of Phila-delphia, have had a very successful year, both as regards prices and numbers of engines sold. Their "Otto" gas engine nes sold. Their "Otto" gas engine been shipped to all parts of the world and has given general satisfaction.

A certificate of incorporation of the Morgan Iron Works was filed in New York, in the office of the County clerk. The incoporators and trustees are John Roach, George E. Weed, Garrett Roach and Stephen W. Roach. The company have a capital of \$40,000, divided into 400 shares of \$100 each. The purpose of the company is to manufacture and repair steam engines, boilers and machinery.

Spangenberg, Pendleton & Co., of Warren, Ohio, will soon have ready for trial a new flexible wheel base locomotive, suitable for roads with sharp curves and rough beds. It was designed more particularly for logging railroads, and is, we are told, a radical departure from anything ever attempted in that line. They have also a new traction engine, using four driving wheels, and a

vokes, the arrangement having been found yokes, the arrangement naving been found to give highly satisfactory results. With the beginning of the new year they will commence building a full line of grinding machinery with their yielding bearings. These new machines will be graded in weight and size according to diameter of spindles. &c. and will embrace many new spindles, &c., and will embrace many new and original features.

It is reported that J. R. McCourtney will retire from the presidency of the Bellaire Nail Works, of Bellaire, Obio, at the annual meeting of the stockholders of the company which will be held next month. It is stated that Mr. McCourtney will still retain his position on the Board of Directors. The Bignall & Keeler Mfg. Company, of at Girard, Ohio, which was blown in four weeks ago, is working very smoothly. Dur-ing the time it was shut down a large Keeler pipe cutting and threading machines is considerably larger than the supply.

One of the ice machines being made by the Montgomery (Ala.) Iron Works is for the Montgomery Ice Company, and will in-crease the capacity of that establishment to number of improvements were made, and it is now considered the finest furnace plant in the Mahoning Valley. Under the management of Mr. Henry B. Shields, the average daily output now is 150 tons, and this is 40 tons per day.

The Den Bleyker Mfg. Company, of Kalamazoo, Mich., are putting on the market what is known as the Kimble engine. In The Edgar Thomson Steel Works, at Braddock, Pa., closed down on the 25th inst., and will remain closed for several order to enlarge their capacity the firm are about to form a stock company.

The Brozelle Engine Company, of St. Louis, Mo., report an active demand for Brozelle's hydraulic governor.

The largest locomotive boiler ever built in Hartford, Conn., so far as known, and probably one of the largest ever built in the United States, has just been tested at the shops of I. B. Davis & Son. It will be at once shipped to the New York Post Office, where it is to take its place beside another of like size made by the same firm. The pair will be used to generate steam for the dynamos that operate the electric lights of Aikin & Lighton, Birmingham, Ala., will remove their foundry and machine shop to another location. Work on their new buildings will commence in January.

The Weimer Machine Works Company of Lebanon, Pa., have closed contract with the Pratt Coal and Iron Company, of Birdynamos that operate the electric lights of the building. The boiler weighs 9 tons and mingham, Ala., for 12 blowing engines of following sizes: 54-inch stroke, 84-inch blowing cylinder, 42-inch steam cylinder. The capacity of the works is 24 engines of The employees of the Hartman Steel Company, Limited, at Beaver Falls, Pa., are now engaged perfecting a plan to start alarge general store on the co-operative plan. To become a member one must subscribe this size a year, with repair work also.

Messrs. Byram & Co., of Detroit, Mich have recently made shipments of their Colliau cupola furnace to Messrs. E. W. Ross & Co. and pay in \$20 in cash toward the capital of the concern. They propose to raise \$8000 and begin operations in the spring. It is said the Hartman Company have promised and Harden, Bushnell & Glessner, of Spring field, Ohio, the Lopping Brake Shoe Com-pany, Newark, N. J., and the I. P. Morris Company, Philadelphia, Pa.

The Phœnix Iron Works Co., of Minneapolis, Minn., were incorporated on September 10, 1885, with an authorized capital of \$50,000. The works, which are at St. Cloud, now embrace the following buildings: One of three stories, 62 x 280 feet, with a 130-feet tower for the wood-working shops, with the main office of the works on the ground floor; one-story machine shop, with a total length of 548 feet, surmounted by an iron truss roof; one two-story shop and tool-room, 62 x 62 feet; a one-story foundry room, 62 x 62 feet; a one-story foundry building, 218 feet long, 20 feet high, with corrugated iron and truss roof; one-story blacksmith shop, 16 feet high, with same style roof, size 40 x 60 feet; a storage building, one story, 40 x 700 feet, including paint shop, shipping-room, iron and coke storage, &c. St. Cloud is a bright, flurishing town of 9000, located on the Mississippi, 70 miles north of Minneapolis. The new works will use water-power rated at 40,000 horse-power; have Northern Pacific and Manitoba Railroad side-tracks, affording excellent shipping facilities. Four hundred men will be employed, the works turning out the Monitor, Little Monitor and Crown roller mills, their well-known milling machinery specialties, engines, sawmills, grain elevators, mining machinery, &c.

The Toledo Foundry and Machine Com-The Toledo Foundry and Machine Com-pany, of Toledo, Ohio, are putting up two brick buildings which will increase their manufacturing facilities fourfold. With favorable weather they hope to have all in operation by the middle of February. They intend making a specialty of manufacturing railroad tools, consisting of excavators, pile drivers, snow plows, hand cars, also saws, with hoop machines, &c.

The Buffalo Forge Company, of Buffalo, N. Y., write us as follows: "We take pleasure in reporting business good in all branches of our manufacture. Among recent shipments of forges are 10 forges for the Studebaker Wagon Works; 12 forges, Atlanta University, Atlanta, Ga.; 24 forges, Manual Training School, Toledo, Ohio; 6 additional forges, making 18 in all, to Abbott Buggy Company, Chicago; 6 forges to Groton Carriage Company, Groton, N. Y.; besides preliminary shipments to Pennsylvania State Reform School, and Haverford College, Philadelphia, Pa. We are also branches of our manufacture. Among rement we have recently shipped one large 14-foot fan to the Northern Michigan In sane Asylum, Traverse City, Mich.; one same size to the Retsof Mining Company, Pifford, N. Y.; one 12-foot fan to Western Insane Asylum, Morganton, N. C.; one 4-foot disk exhaust wheel to Public School Department, Brooklyn; one 5 foot and three 42-inch wheels to a Syracuse party, and one 4-foot wheel to a large paper mill in San Francisco, Cal. The above are independ ent of routine shipments to cur regular job-bing connection, which show a very grati-fying increase also. We shall have a num-ber of new designs in band and power black smith drills to offer the coming year; also entirely original tool for blacksmiths adapted to a class of work which is now being done entirely by hand."

McLaughan & Stone, founders and ma chinists, Hallidaysburg, Pa., have just completed two ore washers, each with a set of their new jigs, for the Keystone Manganese and Iron Company, Batesville, Ark. They are now building a rotary squeezer and engine for the Wetsoutown Nail Works, Watsoutown, Pa. They have also underway some heavy housings and washers, and

Stokes & Parrish Machine Company, sengine, using four driving wheels, and a new automatic cut-off engine.

The new works in East St. Louis of the Todd Pulley and Shafting Company have a capacity of 130 pulley castings a day, from a cinches up to 10 feet diameter. The machine sup is admirably fitted up and has a capacity of 60 finished pulleys a day.

The Wray Emery and Paper Polishing Wheel Company, of Albany, N. Y., report extensive sales during the past three months of their new polishing machinery. This is built with journal bearings suspended in

Hardware.

James H. Baker, of the Ohio Clip Works, Westville, Ohio, and Oliver Bros. & Phillips. Pittsburgh, Pa., have formed a company to be known as the Baker Wagon Iron Mfg. Company. Their works will be located at Beaver's Falls, to which place the plant of the Ohio Clip Works will be moved. It is expected that the new works will be ready for business about the middle of January. The Bignall & Keeler Mig. Company, of St. Louis, Mo., operate their works to full they will make a large line of first class capacity. The demand for the Bignall & wagon irons in iron and steel in addition to Keeler pipe cutting and threading machines the line which have heretofore been made at Westville by the Ohio Clip Works. They will also make specialties in wrought iron and steel for agricultural implements, also s line of chain of all sizes.

Byram & Co., Detroit, Mich., have retrucks to Texas and California.

The Miller Chain Company, Akron, Ohio, have discontinued the manufacture of chains, except cable, coil and agricultural chains, on which they report business good, with sufficient orders to occupy them for the next for days. o days.

The works of E. S. & F. Bateman, Spring Mills, N. J., are situated on the line of the West Jersey Railroad, 12 miles from Phila-delphia, power being furnished by a stream which for the 50 years of their existence has not failed. Thus situated, with new and improved machinery in all departments, improved machinery in all departments, they are in a position to produce economically the line of goods they manufacture, including cultivators, among which the Iron Age Cultivator is prominent, cultivator teeth, garden plows, &c. They are also about to produce a line of hand seed and fertilizer drills, which, it is intimated, will be ready for the spring demand.

Wood Smith & Co. Fort Plain N. V.

Wood, Smith & Co., Fort Plain, N. Y., during the pust year have greatly increased their capacity, and are turning out more goods than ever before. They are feeling the improvement in business and report their order-books well filled for the approaching season. ing season.

By the fire which occurred on the 19th inst., Keith & Trufant, Campello, Mass., have been delayed in their manufacturing for about a week, but matters are now adjusted and the works started up on the 24th inst. They report business good with many orders on their books which they hope to fill without inconvenience to their customers.

The Rochester Machine Screw Company, Rochester, N. Y., have again set all their machines in motion and are preparing to put their goods on the market in larger quantity than for some time, this policy being pursued because of the improved condition and increasing decades. dition and increasing demand for this line.

The Trump Bros. Machine Company. Wilmington, Del., with the recent additions to their shops, have an increase of about to their shops, have an increase of about one-third in capacity, and within a short time have been adding such tools as their necessities require. They report that they are full of work, and allude especially to Hosiery Machinery as a line to which they are giving considerable attention, while their trade in their Scroll Saws, Finished Hexagon Care, Hardened Nutz, small Chucke. Hexagon Case-Hardened Nuts, small Chucks and Lathe Center Grinders continues with out special feature.

Miscellaneous.

A meeting of the stockholders of the wheeling Natural Gas Company was held in Wheeling last week and a resolution passed to increase the capital stock to \$1,-000,000. A call was made for immediate increase by subscriptions of the new capital at par. Each shareholder is entitled to take his pro rata share of the stock at its par value in cash. This will place the company on a dividend-paying basis.

The Robert Aitchison Perforated Metal Company, No. 76 East Van Buren street, Chicago, have closed a contract with Messrs. John S. Davis' Sons, Davenport, Iowa, for their supply of perforated metal for the en-

The glass manufacturing firms of Baker Bros. and Swindell Bros., of Baltimore, signed an agreement on the 24th inst. to the signed an agreement on the 24th inst. to the effect that they would, on Monday, December 27, draw the fires and shut down their factories if their employees did not accept a reduction in wages of 15 per cent. and allow two apprentices to each blast. The men are determined that they will not accept a reduction register. reduction; neither will they grant the in stallation of any more apprentices.

The contract for the construction of the new building for the Chamber of Comm in Cincinnati, Ohio, has been awarded to Norcross & Co., of Worcester, Mass., for \$524,000. Worcester granite is the mate-rial chosen. This bid does not include excavation and carving, which will make the total cost \$600,000.

The American Pin Company, at Water-bury, Conn., aithough retaining the manufacture of pins, are now largely entering the manufacture of brass goods and novelties. They are adding very materially to their plant, and during the coming year will have much more room than at present.

At the annual meeting of the Western Iron Ore Association hald in Cleveland week Iron Ore Association hald in Cleveland week before last the following officers were chosen to serve during the coming year: President, George H. Ely; secretary, W. D. Rees; executive committee, George H. Ely, Minnesota district; Samuel L. Mather, Fayette Brown and W. D. Rees, Marquette district; John H. Van Dyke, of Milwaukee, and M. A. Hanns, Menominee district; James Pickands and H. A. Tuttle, Gogebic district; E. A. Hitchcock, of St. Louis Missouri district. Missouri district.

Manufactory and Depot at

Impure Water is Poison. Best Filter ever Invented.

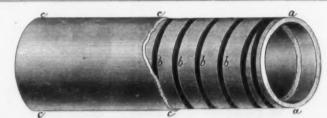
Price \$3.75 to \$41.25 each, according to size and style.

This open cut represents our China Filters with Filter Disc and Patent Ice Chamber.

Cheap Stone Jar Filters for the kitchen. Fine Porcelain (with Ice Chambers) for dining-rooms, halls and offices. Lasts a lifetime without change. NO METAL USED. All common metals generate poison when in contact with water. To Charcoal, Sand or other Compound used. They all absorb, retain and become foul with Living Organisms. To Charcoal has no Chemical effect on water. Our Filtering Medium is a Natuarl Stone. No matter whether the impurities are organic or inorganic, they are left on the surface of the stone, which is as easily cleaned as an ordinary water pail or pitcher.

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WIRE CLOTH, HEX. NETTINGS, WIRE LATH AND FENCING.

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WIRE CLOTH and NETTINGS.

Clinton "Standard" (Number 33 Wire) Painted Window Screen Wire Cloth.

NEW YORK, 59 Beekman St. BOSTON, 23 Court St. CHICAGO, 137 Lake St. "THE PRINCESS" WARDROBE HOOK.

Factory and General Office-CLINTON, MASS.



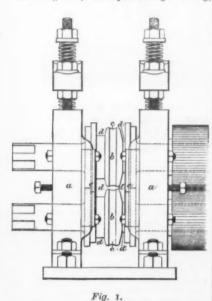
No. 190, Fine Polished Brass, per gross \$16.00. Discount, 70 and 10 per cent. Perfection for the purpose and very handsome. No sharp edges, no pointed acorn, no knob to prevent the easy removal of anything hung upon it, no rust to injure garments. Will hold 200 pounds.

THE WIRE GOODS CO., WORCESTER, MASS. Bright Wire Goods. Tassel Picture and Bangle Hooks, and Specialties in Wire Wire Nails of all kinds and sizes.

that is, from ½ inch to 18 inch. Each piece is provided with a gauge, carefully fitted, which shows the position at which to fasten the bits, and also the angle at which to file them—an important convenience which will be generally appreciated by the trade.

Rolls for Straightening Careened Rails.

Capt. William R. Jones, of the Edgar Thomson Steel Works, has introduced successfully rolls for straightening careened In rolling rails it often happens that as the rail comes from the finishing pass its head will be hent or careened over to one side, so that when the rail is laid and joined the fish-bars will not fit on both sides. Owing to the prevalence of thin webbed rails the guides, while preventing twisting



often careen the rail. Then the fish-bar may fit on one side against the web and fail to touch the head and flange, while on the other side it may fit tightly on the head and flange and lack $\frac{1}{1^{\pm}}$ inch or more of touching the web. Rails of this sort make poor joints on the tracks, and because of their unfitness for use entail a heavy loss on the manufact-

for example, a set of bits-1/2 inch wide each them to be of great utility, and to be prowill make a groove \$\frac{1}{6}\$ inch, or they can be set to work at any intermediate width—
that is, from \$\frac{1}{2}\$ inch to \$\frac{1}{6}\$ inch. Each piece is provided with a gauge, carefully fitted, which shows the position at which to fasten if the size of the fich plates be constant there will be no difficulty in making perfect joints on the track

Writing Paper.

Paper was first made in England in 1498 at Dartford, Kent, by one Tate. White paper was first made in that country by French Protestants in 1688-90. The first paper mill in this country was at Germantown, Pa., in 1693. To show the value of paper at that time, it may be stated that one of the part-ners sold out his one-fourth interest for ah annual return of seven reams of printing paper, two reams of writing paper and two paper, two reams of writing paper and two reams of blue paper. The second mill in this country was at Elizabethtown, N. J., followed shortly after by others in the Massachusetts colony. In 1732 an attempt was made in the British House of Commons to suppress the manufacture of paper in the colonies as "detrimental to the trade, navigations or manufactures of Grand Britan's gations or manufactures of Great Britain, but this attempt seems to have been un successful.

Writing paper and book paper not only appear to be different, but they are made of different materials. Writing paper is made only from rags, while book paper is made Writing paper is made only from rags, while book paper is made from waste paper. The processes of the manufacture are, however, similar. The materials for good writing paper are cotton and linen rags of domestic gathering, supple-mented by importations. The rags come to the mill in bales, and are assorted in several grades and then cut into pieces by hand. The cutting is done by girls and women, sitting in front of a bench, to which is fixed a short blade like a small scythe blade. The rags, picked up by the handful, are drawn across the keen edge with great rapidity, the operator occasionally using a sandstone rifle, just as the mower does, so that the dusty room resembles, to the ear, a field of busy mowers. At a second sorting all the buttons pins, hooks and eyes and harsh seams are removed. The rags then go to a duster, a large cylinder of woven wire, inside of which is a shaft carrying a number of blades of plate iron set in a spiral form on the shatt and revolving at a rate of speed higher than that of the outer cylinder. This difference of speed, with the spiral setting of the blades, insures a constant stirring up of the rag and their gradual progress from one end to the other of the cylinder, and their final discharge at the open end.

The dusted rags then go into a rotary

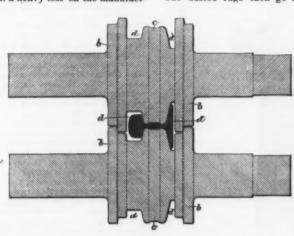


Fig. 2.

rail is shown in Fig. 3.

In practice Mr. Jones runs the rail as it leaves the finishing rolls on to a table, where its ends are sawed off. It is then passed through the rolls shown in the drawings, where a represents the housings and b b the



tongues, c, the shape and angles of each of which are substantially identical with the desired shape of the fish-plate space on one side of the rail—i. e., the space included between the inner sides of the head and flange and defined by their inner angles of flange and defined by their inner angles of divergence from the web. At the sides of the tongues c c are grooves d d', the grooves d forming an opening for the head of the rail, but of somewhat larger area than the cross section of the head, while the grooves d' form an opening for the flange, though of larger, area then the cross-section of the cleans the rags, but reduces them to a semi-pulpy mass known as "half stuff," which, although clean, is not purely white. It is bleached with chloride of lime and again passed through an engine, when the bleached material, in heaps, resembles solid snow After this comes the bluin. permit it to be straightened up, while the space for the flange is no larger than its area in cross section. So, also, if the head be normal and the flange be careened, it is possible white, so paper is blued to the same end. in cross section. So, also, if the head be normal and the flange be careened, it is possible white, so paper is blued to the same end. The rolls are simple and easily bluing has the same clear white that wind-driven snow has, which is slightly blue. of the head. The rolls are simple and easily operated, and practical experience at the Edgar Thomson Steel Works has demonstated lish, and it finds a market in this country at mission. It is said that this is but the

A cross-section of such a careened | boiler made of boiler iron or steel, revolving on journals, one of which is hollow and admits steam at a pressure of from 40 to 60 pounds to the square inch, corresponding, according to Regnault's tables, to a heat of from 292° to 308° F. With the rags is introduced a certain quantity of limewater to assist in the cleaning, the object being to start the color as well as the dirt, for white writing paper is made from colored rags as well as from white rags, only the finest note. white rags. These rotating boilers are of a capacity of a charge of rags weighing from 4000 pounds upward. The boiler is usually charged through a manhole that when in

place is securely packed.

From this boiler the rags pass to a cleansing engine which is a tank of oval plan, the walls of which rise about 30 inches from the floor. The tank is partially divided longitudinally by a straight portion, the ends of the partition reaching toward the walls of the tank far enough to leave a space of the same width as that between the partition's sides and the tank's walls. On one side of this partition, across the center of the tank, revolves a toothed drum, carrying blades that act on the rags as they pass in the trough between fixed blades at the bottom of the tank. These blades do not cut the a form an opening for the mange, though of larger area than the cross-section of the flange. As the rail is passed between the floer. The cleaning of the rags in the prorolls the tongues c engage the inner sides of the head and flange, and if the rail is careened the tongues bend the head or flange, or both, so as to reduce the rail to a symmetrical shape, as will be understood, the enlarged spaces d and d affording room for the flange or head to be straightened up the required degree. The drawings drum, induces and keeps up a current around drum, induces and keeps up a current around up the required degree. The drawings drum, induces and keeps up a current around show the spaces d and d consisting of grooves and around the tank. This engine not only show the spaces d and d consisting of grooves inclosed by collars on their outer sides. These, however, while convenient, are not essential. In cases where the head of the rail is although clean, is not purely white. It is

the South, where clear white paper is not desired. The bluing material is called "ultramarine," but it is not the true ultramarine, which is made from the mineral lapis lazuli, but it is made from silicate of soda, alumina, sulphuret of iron and sodium, or carbonate of soda. This is mixed, in powdered form, with the bleached "half stuff," and the pulp then goes to beating engines which are similar to the cleansing en-gines just described. When the pulp is ready to be made into paper it looks like a milky fluid, and does not show a fibrous character except on close examination. Writing paper was formerly made by hand, the workmen dipping a square sieve in the pulp and depositing the film on a piece of felt. This slow process is not altogether obsolete, This slow process is not altogether obsolete, but it is employed for some purposes still. Mainly, however, it has been superseeded by the Fourdrinier machine, named for its inventor, a Frenchman. It may properly be called a "congeries" of machines, as it per forms various duties and is so large that generally it occupies a building constructed specially for it, being 6 feet wide and 75 feet long, sometimes of larger dimensions. The pulp is pumped into an elevated tank

from which it is fed to the engine by a delivery gate capable of close adjustment, as upon the amount of pulp fed to the machine depends the ultimate weight of the paper. The pulp flows on to the face of a roller and is passed to an endless apron of fine wire sieve that has imparted to it a jarring motion, to discharge as much as possible the water, while the sieve retains the almost impalpable pulp. A set of rolls compresses the pulp web, which then goes over a series of boxes perforated on the side over which the web A set of rolls compresses the pulp passes, the boxes being exhausted of air by a fan as the web moves. This withdraws the surplus water that has not been removed by the sieve and rollers. The sheet having acquired considerable tenacity is dried by passing between rollers heated by steam. passing between rollers heated by steam. Then comes the sizing, without which the closest textured paper would not receive ink and not spread a blot. The size is the common glue of commerce made from rawhide of cattle, but it is employed hot and quite thin. A second partial drying, edging of the continuous web by rotary shears, and a cutting across into sheets, completes the operations of turning liquid, milky pulp into elastic, continuous sheets of a substance almost impermeable to air.

From "the machine" the sheets, still damp

From "the machine" the sheets, still damp from the sizing, are removed to drying lofts, Irom the sizing, are removed to drying lofts, and are dried by sun and outer air in pleas ant weather and by steam heat in inclement weather. They are then subjected to the action of hydraulic presses. They are then calendered by means of a machine of rolls, three of chilled iron and two of paper. The paper rolls are formed of disks of thin mania paper, cut in presses to diameter, with noise through their centers for the recention. noles through their centers for the reception of the shaft. These are pressed in place by a hydraulic machine and turned like the iron rolls. The surfaces of the turned paper rolls are remarkably smooth. The shee s, after ironing in the calender machine, are cut in reams by a knife similar in form and action to that of the French guillotine. The sheets are then sorted and counted, the somewhat defective ones going to an inferior grade of paper. The company's stamp is embossed on each sheet under a press. Ruled paper has its lines made in a machine that is essentially self-acting. The ink is more fluid than that used for writing. The ruling pens are of sheet brass, and are semi-cylindrical tubes fed from a whole tube, to which the ink rises from a trough by means of wicks, as oil in an ordinary lamp. The packing in boxes supplements all this work, and the sheets are ready for the market.

A New Armor-Plate Mill.-According to a statement by a Pittsburgh newspaper Carnegie, Phipps & Co., Limited, are now preparing plans for a new mill to be built at their Homestead works, which will be capa-ble of rolling the largest-sized armor plates named in Secretary Whitney's advertisement for bids. Ingots weighing 50 or 60 tons can readily be made at the new open-hearth plant now approaching completion, and con-tracts will soon be let for the additional cranes necessary to place ingots of this size on the tables leading to the rolls, and also for well as from white rags, only the finest note on the tables leading to the rolls, and also for the tables themselves. The new mill will be white rags. These rotating boilers are of a pushed to completion as rapidly as possible, and is avanated to be ready by September. capacity of a charge of rags weighing from 4000 pounds upward. The boiler is usually rotated by means of a worm-wheel on its solid journal and a worm-screw, and it is capacity of the property and certainly by October, 1887. Carnegie, Phipps & Co. have found that there will be solid journal and a worm-screw, and it is capacity of the property of the can produce, and that, by building it somewhat stronger than the needs of their or-dinary trade will require, they will have a mill better adapted for rolling armor plates than any other mill now in existence. The plans, which have been drawn up only in their general outline so far, have been designed by Julian Kennedy, general superintendent for the firm, and Henry Aiken, the assistant superintendent. They have also been submitted to Capt. W. R. Jones, of the Edgar Thomson Works, who has given his hearty approval to them, so far as they are completed. The quantity of armor plate now called for by the Government is about 5000 tons, and the largest-sized plates will weigh about 40 tons, so that the new mill will be fully capable of doing the than any other mill now in existence. new mill will be fully capable of doing the work. When this mill is completed this firm will have two-thirds of the plant necessary to make armor plate ready to go on the mild of the plant the mild of the plant necessary to make armor plate ready to go on the mild. vessel. Thus, if they make a contract with the Government, it will require a com-paratively small expense to make this plant omplete for turning out the finished armor

The Edison Electric Company, of New York, has filed II suits at Trenton, N. J., against Westinghouse, Church, Kerr & Co., of Pittsburgh, for alleged infringement on Edison electric light patents. The contest promises to be a legal fight for supremacy, which will have a national celebrity. The "three wire system" is one of the infringe-ments complained of, which consists of two feeding wires and a return wire for both, making a great saving in both wire and glass. The Edison Company state that Westinghouse & Co. have appropriated this

initial suit of a number which will bring the entire question of incandescent lighting be-fore the courts, and some of the most emi nent counsel in the country have been retained on both sides. A fight has already been made in England on the same subject, in which the Edison Company came out victorious, and they are therefore encouraged to press the same suit more vigorously in the United States. Injunctions have been asked for preventing Westinghouse, Church, Kerr & Co. from using any and all of the Edison appliances for fitting out electric lights. As the Westinghouse Company will contest the matter to the bitter end, a spirited litigation may be looked for.

The Coke Troubles Adjusted .- At a

meeting at Pittsburgh of representatives of

the coke syndicate, of the Knights of Labor and of the Miners' and Laborers' Associa tion, the differences pending were adjusted. The syndicate made the following propo sition, which was accepted by the representatives of the labor organizations: "We agree to make the following advances, to take effect January 1, 1887: To pay track layers the same price as the haulers in the layers the same price as the nauters in the same mine—namely, \$2 and \$2.10 per day; to reduce tool sharpening to 40 cents per month; to advance the price of mining 5 cents per 100 bushels; to pay heading price for turning rooms; to take under advisement a just advance in wages when the selling price of coke is advanced." In accepting the mean put forward the follows: accepting, the men put forward the tollowing: "We agree that no further demands ing: "We agree that no further demands be made until the selling price of coke be advanced, and that no local strike be allowed without an order from the Executive Board." The house rent and price of fire coal were left to be settled at each works independently, but the secretary claims for the men's Joint Executive Board the power of endorsing or rejecting these agreements. The other demands were

The Baltimore Sun of December 6 says The model of the old Peter Cooper loco motive, the first in use on the Baltimore and Ohio, and the little 'grasshopper' engine, which was at the Philadelphia Centennial Exhibition in 1876, were on Saturday placed in honorable retirement in the directors' room at the Central Building of the Baltimore and Ohio Company in the city. These interesting examples of the locomotives of more than 50 years ago returned last week from New Orleans, where they had been on exhibition."

Old Metals, Rags, &c.

The purchasing prices offered by dealers are as follows : Heavy Copper ... Light Copper ... Copper Bottoms Brass, Heavy ... Brass, Light@@ .06 @ .0434 @ .073, .075, .065, .068, .084, .033, .033, .16.00 .9.00 .9.00 .033, .014, .00 .014, .013, .014, . ought Iron Wrought Iron
Light Iron.
Stove Plate Iron
Machinery Iron.
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White No. 1.
Canvas, Linen, No. 1.
Canvas, Cotton, No. 1.
Canvas, No. 2.
Secouls . 5.00 @ .07% @ .01% @ .04% @ .04% @ .01% @ .01 @ .01 @ .01 @ .01 @ .01 @ .01 @ .01 @ .00% @ .00% @ .00% @ .00% @ .00% @ .00% @ Seconds.
Soft Woolens.
Mixed Rags.
Gunny Bagging, No.
Jute Butts.
Book Stock Newspapers

Waste Paper

Kentucky Bagging

Kentucky Bale Rope

Kentucky Bagging

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A Four-Cylinder Locomotive
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Special care has been taken in the manufacture of this Wheel to avoid danger from bursting and secure uniform density. It is a free and rapid cutter, and a desirable Wheel for persons whose work requires a Wheel to run as cool as possible when run dry. It makes a clean, brilliant cut, which will be found desirable for many classes of work. THE WELLINGTON EMERY WHEEL CO., 103 North 10th Street, Philadelphia, Pa,

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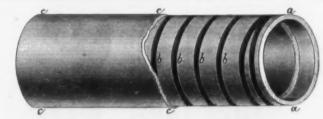
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MANUFACTURING.

Iron and Steel.

It is reported that J. R. McCourtney will retire from the presidency of the Bellaire Nail Works, of Bellaire, Obio, at the annual meeting of the stockholders of the company which will be held next month. It is stated that Mr. McCourtney will still retain his position on the Board of Directors.

The furnace of the Girard Iron Company, at Girard, Ohio, which was blown in four weeks ago, is working very smoothly. During the time it was shut down a large number of improvements were made, and is is now considered the finest furnace plant in the Mahoning Valley. Under the management of Mr. Henry B. Shields, the average daily output now is 150 tons, and this is steadily increasing.

The Edgar Thomson Steel Works, a Braddock, Pa., closed down on the 25th inst., and will remain closed for several weeks. During the stoppage extensive repairs will be made.

The largest locomotive boiler ever built in Hartford, Conn., so far as known, and probably one of the largest ever built in the United States, has just been tested at the shops of I. B. Davis & Son. It will be at shops of I. B. Davis & Son. It will be at once shipped to the New York Post Office, where it is to take its place beside another of like size made by the same firm. The pair will be used to generate steam for the dynamos that operate the electric lights of the building. The boiler weighs 9 tons and has 1202 square feet of heating surface giving 196 horse power. ing 186 horse-power.

The employees of the Hartman Steel Company, Limited, at Beaver Falls, Pa., are now engaged perfecting a plan to start a large general store on the co-operative plan. To become a member one must subscribe and pay in \$20 in cash toward the capital of the concern. They propose to raise \$8000 and begin operations in the spring. It is said the Hartman Company have promised them substantial pecuniary backing if they will raise the amount above mentioned. So far the projectors of the enterprise report gratifying success.

The officers of the Kemble Iron Com-pany, of Riddlesburg, Pa., have informed their employees that after January 1 their wages will be increased 10 per cent.

Mr. Lewis Jones, for 10 years manager of the Ætna Iron and Steel Company, of Bridgeport, Ohio, has resigned his position.

The nail factory of the La Belle Iron Works, at Wheeling, W. Va., turned out 8054 kegs of nails week before last.

A charter was granted at the State De-Novelty Mfg. Company, of Pittsburgh Novelty Mfg. Company, of Pittsburgh, with a capital of \$25,000. The shareholders are Christian J. McKee, James A. Cooper, Samuel L. Barndollar, Herman Steger and D. B. Taylor.

Machinery.

J. L. Walker, foreman of the shops of Logan & Strobridge, at New Brighton, Pa., has recently been granted a patent for a

The E. Horton & Son Company, of Windsor Locks, Conn., write us that their business is constantly increasing. They are adding new sizes and styles to their list of chucks, and are putting in some new special tools and machinery in anticipation of increasing business during the coming year.

The W. F. & John Barnes Company, builders of foot and steam-power machin-ery, of Rockford, Ill., inform us that they find their export trade with the Spanish-American markets so largely on the increase that they are obliged to have a Spanish edi-tion of their catalogue, which is now under

A certificate of incorporation has been granted to the Sleigh & Smith Rotary Engine and Mfg. Company, of Parkersburg, W. Va., which propose to manufacture and sell the Sleigh & Smith rotary engines, and deal in all kinds of machinery, engines and boilers, fixtures and supplies, and to carry on a general repair business. on a general repair bus

prominent English firm for about 50 automatic screw machines, this being the second order for a like number received from this firm during the last eight months, and it will probably be still further increased soon.

Schleicher, Schumm & Co., of Phila-delphia, have had a very successful year, both as regards prices and numbers of engines sold. Their "Otto" gas engine has been shipped to all parts of the world and has given general satisfaction.

A certificate of incorporation of the Morgan Iron Works was filed in New York, in the office of the County clerk. The incoporators and trustees are John Roach, George E. Weed, Garrett Roach and Stephen W. Roach. The company have a capital of \$40,000, divided into 400 shares of \$100 each. The purpose of the company is to manufacture and repair steam engines, boilers and machinery.

Spangenberg, Pendleton & Co., of Warren, Ohio, will soon have ready for trial a new flexible wheel base locomotive, suitable for roads with sharp curves and rough beds. It was designed more particularly for logging railroads, and is, we are told, a radical departure from anything ever attempted in that line. They have also a new traction engine, using four driving wheels, and a new automatic cut-off engine.

vokes, the arrangement having been found to give highly satisfactory results. With the beginning of the new year they will commence building a full line of grinding commence building a full line of grinding machinery with their yielding bearings. These new machines will be graded in weight and size according to diameter of spindles, &c., and will embrace many new and original features.

The Bignall & Keeler Mfg. Company, St. Louis, Mo., operate their works to full capacity. The demand for the Bignall & Keeler pipe cutting and threading machines is considerably larger than the supply.

One of the ice machines being made by the Montgomery (Ala.) Iron Works is for the Montgomery Ice Company, and will in-crease the capacity of that establishment to 40 tons per day.

The Den Bleyker Mfg. Company, of Kala mazoo, Mich., are putting on the market what is known as the Kimble engine. In order to enlarge their capacity the firm are about to form a stock company.

The Brozelle Engine Company, of St. Louis, Mo., report an active demand for Brozelle's hydraulic governor.

Aikin & Lighton, Birmingham, Ala., will remove their foundry and machine shop to another location. Work on their new buildings will commence in January.

The Weimer Machine Works Company of Lebanon, Pa., have closed contract with the Pratt Coal and Iron Company, of Birmingham, Ala., for 12 blowing engines of following sizes: 54-inch stroke, 84-inch blowing cylinder, 42-inch steam cylinder. The capacity of the works is 24 engines of this size a year, with repair work also.

Messrs. Byram & Co., of Detroit, Mich. have recently made shipments of their Colliau cupola furnace to Messrs. E. W. Ross & Co. and Harden, Bushnell & Glessner, of Springfield, Ohio, the Lopping Brake Shoe Com-pany, Newark, N. J., and the I. P. Morris Company, Philadelphia, Pa.

The Phoenix Iron Works Co., of Minne apolis, Minn., were incorporated on September 10, 1885, with an authorized capital of \$50,000. The works, which are at St. Cloud, now embrace the following buildings: One of three stories, 62 x 280 feet, with a 130-feet tower for the wood-working shops, with the main office of the works on the ground floor; one-story machine shop, with a total length of 548 feet, surmounted by an iron truss roof; one two story shop and tool-room, 62 x 62 feet; a one-story foundry building, 218 feet long, 20 feet high, with corrugated iron and truss roof; one story blacksmith shop, 16 feet high, with same style roof, size 40 x 60 feet; a storage building, one story, 40 x 100 feet, including paint shop, shipping-room, iron and coke storage, &c. St. Cloud is a bright, flourishing town of 9000, located on the Mississippi, 70 miles north of Minneapolis. The new works will use water-power rated at 40,000 horse-power; have Northern Pacific and Manitoba Railroad side-tracks, affording excellent shipping facilities. Four hundred men will be employed, the works turning out the Monitor, Little Monitor and Crown roller mills, their well-known milling ma-chinery specialties, engines, sawmills, grain elevators, mining machinery, &c.

The Toledo Foundry and Machine Com-The Toledo Foundry and Machine Com-pany, of Toledo, Ohio, are putting up two brick buildings which will increase their manufacturing facilities fourfold. With favorable weather they hope to have all in operation by the middle of February. They intend making a specialty of manufacturing railroad tools, consisting of excavators, pile drivers, snow plows, hand cars, also saws with hoop machines, &c.

The Buffalo Forge Company, of Buffalo, N. Y., write us as follows: "We take pleasure in reporting business good in all branches of our manufacture. Among recent shipments of forges are 10 forges for the Studebaker Wagon Works; 12 forges, Atlanta University, Atlanta, Ga.; 24 forges, Manual Training School, Toledo, Ohio; 6 Manual Training School, Toledo, Onlo; of additional forges, making 18 in all, to Abbott Buggy Company, Chicago; 6 forges to Groton Carriage Company, Groton, N. Y.; besides preliminary shipments to Pennsylvania State Reform School, and Haverford At Pratt & Whitney's, Hartford, Conn., numerous important orders are being received and others are in prospect which will keep the works busy for the coming year. Recently a cable order was received from a Ithaca, N. Y. In our ventilating depart ment we have recently shipped one large 14-foot fan to the Northern Michigan In sane Asylum, Traverse City, Mich.; one same size to the Retsof Mining Company, Pifford, N. Y.; one 12-foot fan to Western Insane Asylum, Morganton, N. C.; one 4-foot disk exhaust wheel to Public School Department, Brooklyn; one 5 foot and three 42-inch wheels to a Syraouse party, and one 4-foot wheel to a large paper mill in San Francisco, Cal. The above are independ ent of routine shipments to our regular jobont of routine supments to our regular job-bing connection, which show a very grati-fying increase also. We shall have a num-ber of new designs in hand and power black smith drills to offer the coming year; also entirely original tool for blacksmiths adapted to a class of work which is now being done entirely by hand."

McLaughan & Stone, founders and ma McLaughan & Stone, founders and ma chinists, Hallidaysburg, Pa., have just completed two ore washers, each with a set of their new jigs, for the Keystone Manganese and Iron Company, Batesville, Ark. They are now building a rotary squeezer and engine for the Watsoutown Nail Works, Watsoutown, Pa. They have also underwaters and

Stokes & Parrish Machine Company, Philadelphia, report a year of unusual activity in their line. Work on hand includes three hydraulic passenger elevators for the The new works in East St. Louis of the Todd Pulley and Shafting Company have a capacity of 130 pulley castings a day, from 6 inches up to 10 feet diameter. The machine shop is admirably fitted up and has a capacity of 60 finished pulleys a day.

The Work on hand includes three hydraulic passenger elevators for the Metropolitan Telegraph and Telephone Company, of New York; one for Lessner's Palais Royale, Washington, D. C.; one for G. G. G. Corunall; one for the Greble Estate one for the Hotel St. Denis, Atlantic City; The Wray Emery and Paper Polishing one for Slessher, Whitman & Co.; and one were saved. It is likely the works will at the Pennsylvania Railroad at Broad once be rebuilt. About 100 men are thrown extensive sales during the past three months of their new polishing machinery. This is per minute. They are also very busy on built with journal bearings suspended in

James H. Baker, of the Ohio Clip Works, Westville, Ohio, and Oliver Bros. & Phillips, Pittsburgh, Pa., have formed a company to Pittsburgh, Fa., have formed a company to be known as the Baker Wagon Iron Mfg. Company. Their works will be located at Beaver's Falls, to which place the plant of the Ohio Clip Works will be moved. It is expected that the new works will be ready for business about the middle of January. They will make a large line of first class wagon irons in iron and steel in addition to wagon irons in iron and steel in addition to the line which have heretofore been made at Westville by the Ohio Clip Works. They will also make specialties in wrought iron and steel for agricultural implements, also a line of chain of all sizes.

Byram & Co., Detroit, Mich., have re-cently made shipments of their steel nose trucks to Texas and California.

The Miller Chain Company, Akron, Ohio, have discontinued the manufacture of chains, except cable, coil and agricultural chains, on which they report business good, with sufficient orders to occupy them for the next 60 days.

The works of E. S. & F. Bateman, Spring Mills, N. J., are situated on the line of the West Jersey Railroad, 12 miles from Philadelphia, power being furnished by a stream which for the covers of their systems has which for the 50 years of their existence has not failed. Thus situated, with new and improved machinery in all departments, they are in a position to produce economic-ally the line of goods they manufacture, including cultivators, among which the Iron Age Cultivator is prominent, cultivator teeth, garden plows, &c. They are also about to produce a line of hand seed and fertilizer drills, which, it is intimated, will be ready for the spring demand

Wood, Smith & Co., Fort Plain, N. Y. during the past year have greatly increased their capacity, and are turning out more goods than ever before. They are feeling the improvement in business and report their order-books well filled for the approaching season.

By the fire which occurred on the 19th inst., Keith & Trufant, Campello, Mass., have been delayed in their manufacturing for about a week, but matters are now adjusted and the works started up on the 24th inst. They report business good with many orders on their books which they hope to fill without inconvenience to their customers.

The Rochester Machine Screw Company, Rochester, N. Y., have again set all their machines in motion and are preparing to put their goods on the market in larger quantity than for some time, this policy being pursued because of the improved condition and increase of the improved conditions and increase of the conditions. dition and increasing demand for this line.

The Trump Bros. Machine Company. Wilmington, Del., with the recent additions to their shops, have an increase of about one-third in capacity, and within a short one-third in capacity, and within a short time have been adding such tools as their necessities require. They report that they are full of work, and allude especially to Hosiery Machinery as a line to which they are giving considerable attention, while their trade in their Scroll Saws, Finished Hexagon Case-Hardened Nuts, small Chucks and Lathe Center Grinders continues with out special feature.

Miscellaneous,

meeting of the stockholders of the A meeting of the stockholders of the Wheeling Natural Gas Company was held in Wheeling last week and a resolution passed to increase the capital stock to \$1,000,000. A call was made for immediate increase by subscriptions of the new capital at par. Each shareholder is entitled to take his pro rata share of the stock at its par which is each. This will place the expense. value in cash. This will place the company on a dividend-paying basis.

The Robert Aitchison Perforated Metal Company, No. 76 East Van Buren street, Chicago, have closed a contract with Messrs. John S. Davis' Sons, Davenport, Iowa, for their supply of perforated metal for the en-

The glass manufacturing firms of Baker Bros. and Swindell Bros., of Baltimore, signed an agreement on the 24th inst. to the effect that they would, on Monday, December 27, draw the fires and shut down their factories if their employees did not accept a reduction in wages of 15 per cent, and allow two apprentices to each blast. The men are determined that they will not accept a reduction; neither will they grant the installation of any more apprentices.

The contract for the construction of the new building for the Chamber of Commerce in Cincinnati, Ohio, has been awarded to Norcross & Co., of Worcester, Mass., for \$524,000. Worcester granite is the material chosen. This bid does not include excavation and carving, which will make the total cost \$600,000.

The American Pin Company, at Waterbury, Conn., although retaining the manufacture of pins, are now largely entering the manufacture of brass goods and novelties. They are adding very materially to their plant, and during the coming year will have much more room than at present.

At the annual meeting of the Western Iron Ore Association hald in Cleveland week before last the following officers were chosen to serve during the coming year: P. dent, George H. Ely; secretary, W. their new jigs, for the Keystone Manganese and Iron Company, Batesville, Ark. They are now building a rotary squeezer and engine for the Wetsoutown Nail Works, Watsoutown, Pa. They have also underway some heavy housings and washers, and jig work.

Stokes & Parrish Machine Company, Miscowick district; E. A. Hitchcock, of St. Louis, Miscowick district; Missouri district.

The car works of Small & King, at Middletown, Pa., were wholly destroyed by fire on the 24th inst., causing a loss of \$150,000. The fire originated in the boiler-room, and despite the efforts of the firemen six substantial brick buildings were destroyed. The foundry and office and a few sheds were saved. It is likely the works will at



Co., Indianapolis, Indiana. Atkins

Second only to the Silver Steel Diamond, and equal to it when made of the same class of steel, is the Patent Concaved Tooth Dexter. The patent by which this saw is protected consists of a depression of the face of the cutting teeth through the centre from point to base, thus removing all friction while in use, giving strength and stiffness to the teeth and increasing threefold the durability of the "set." This saw never fails to give the best satisfaction.

Ground substantially uniform gauge on the toothed edge, and any gauge required on the back

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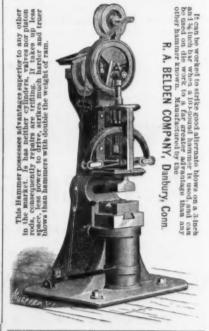


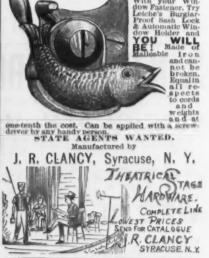
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BANKING-DISCOUNT.

S. had his own note for \$250 discounted at his bank, which credited his account with \$248.58, and the next day he made an ssignment for the benefit of his creditors to

The bank at once charged S.'s account with the face of the note, and tendered it to the assignee, who refused to take it. In an action against the bank to recover this sum which was withheld from the deposit, the plaintiff recovered a judgment, but, on the appeal to the Supreme Court of Pennsylvania, the case—Lancaster County National Book sylvania, the case—Lancaster County National Bank vs. Huver—was reversed. Judge Paxson, in the opinion, said: "This note was worthless paper when S. offered it for discount, and he knew it to be so. His assignee stood in his shoes, and therefore had no better right than he himself had against the bank. Had a check been drawn better than the fined by the discount. against the fund produced by the discount prior to the withdrawal of the credit it would have been good in the hands of a holder in good faith for value. Here, as be-tween S. or his assignee, there was an utter failure of consideration; the bank received nothing for the credit given, and it was justified in rescinding the transaction."

ATTORNEY AND CLIENT.

D., an attorney at law, collected money for a client and deposited the amount in an account which he kept in his own name, but which had in it only his client's money, keeping his private account in a separate deposit account. This money of N., the client, before he could remit it, was attached, and, pending the determination of the suit, the bank failed N. sued to recover from D. and got a judgment, and the case—Naltner vs Dolan—was carried to the Supreme Court of Indiana, where the plaintiff was again successful. Judge Mitchell, in the opinion, said: "The receipt of money by an attorney at law for a client does not create the relation of debtor and creditor between them; he is a trustee of the client, and he will be liable as a trustee for the loss of the money. While it is preserved in its trust character, if he exercises the same caution in respect to depositing it if a deposit becomes necessary, or proper, as a prudent man would in regard to his own money, and a loss happens, he will be excused. In case a loss happens, he will be excused. In case it becomes the duty of an agent or trustee to deposit money belonging to his principal he can escape the risk of loss by the failure of the depositary only by making the deposit in his principal's name, or by so distinguishing it on the books of the bank as to indicate in some way that it is the principal's money. If he deposit in his own name he will not in case of loss be permitted to throw such loss on his principal."

NEGLIGENCE-CONTRIBUTORY NEGLIGENCE. F. was riding with K. in his private carriage, and was injured by the upsetting of it into a ditch or gully in the street, which was in a defective condition. It was shown that K. in driving carelessly had contributed to the injury, and the city, in defending the suit—Foliman vs. City of Manketonscoph, to set up this predicepter. rending the suit—Foliman vs. City of Man-kato—sought to set up this negligence as the negligence of F, on the ground that this negligence was imputable to F. The defendant had judgment on this ground, and the plaintiff appealed to the Supreme Court of Minnesota, where the judgment was reversed. Judge Dickinson, in the was reversed. Judge Dickinson, in the opinion, said: "There can be no imputation opinion, said: There can be no imputation to the plaintiff of negligence in the conduct of another which he neither authorized nor participated in nor had the right or power to control. We cannot accede to the proposi-tion that the driver of a private carriage becomes for the time an agent of the person riding with him, in any such sense as to make the negligence of the former in legal contemplation the negligence of the latter. In this case nothing is shown to 'identify' the plaintiff with K., or to afford support to the plaintiff with K., or to afford support to any theory of agency, except the fact that the plaintiff rode in his carriage at his invitation. Here there was no joint prosecution of a common purpose. The controlling fact is that the plaintiff did not participate in and had no authority respecting the management of the vehichle."

RAILROADS-INJURY TO EMPLOYEE BY FELLOW-SERVANT.

S., a brakeman on a railway train, was servant. The company sought to avoid their liability by a contract signed by S. when he entered their employment, which was as follows: "That while the company will be responsible to me for the discharge of all their duties and obligations to me, and for any fault or neglect of their own or of all their duties and obligations to me, and for any fault or neglect of their own, or of their Board of Directors or general officers, which are the proximate cause of injury, yet they will not be responsible to for the consequences of my own fault or neglect, or that of any other employees of the company, whether they or either of the company, whether they or either of the contract was void as against the contract was void as against the contract was void as against pany were released by this stipulation, because the contract was void as against tory condition as at first. pany wore released by this stipulation, because the contract was void as against public policy. From the judgment the company went to the Supreme Court of this where the case in error—Lake Shore and Michigan Southern Railway Company is dischigan Southern Railway Company is dischigant Railway

Latest Legal Decisions. acts they, the brakemen, have no supervision or control, and who are not to be pre-sumed to be possessed of the requisite in-telligence for that purpose. And we cannot see how the safety of the passengers is put in jeopardy by adding to the responsibility of the conductor for his carelessness that of the company which places him in power. It is the duty of the servants to obey the orders of the superiors placed over them, and they cannot be made to bear the losses arising from carelessness in conducting the train over which their employer gave them no power or control, separately or collectively, until we are prepared to say that justice and public policy require the con-sequences of duty omitted by one party to be visited upon the other, although of able power to prevent such consequences.

SALE OR LEASE OF GOODS-PURCHASER-CHATTEL MORTGAGE.

A manufacturing company in Ohio agreed to make two railroad cars for one B., of Kentucky, for \$2400, of which sum \$1400 was to be paid upon the delivery of the cars, and B.'s note was to be taken for the balance of \$1000, and that was to be paid in installments, and if there was any default in these payments the company could take the cars and sell them to pay the balance due on the note; and it was agreed between it and B. that the title to the cars should not pass to him until the whole purchase money was paid. After the delivery of the cars B. sold them to one Q., who was contracting a railroad for a company, and in his settlement he sold the cars to the company. Certain laborers and contractors who had not been paid by Q. attached all the property on this road, including the cars. The company had passed into the hands of a receiver, and he claimed and recovered them as the property of the company in the attachment suit. The manufacturing company then brought an action of replevin against the receiver—Barney & Smith Mfg. Company vs Hart, receiver—but it was defeated, and it appealed to the Court of Appeals of Kentucky, where the judgment was affirmed. The where the judgment was affirmed. The Chief Justice (Pryor), in the opinion, said: "There was a sale of the cars to B., and the reservation of title in the vender was sim-ply to create a lien as against any purchaser or creditor of the vendee. The manufacturing company Lad made B. the ostensible owner; had received more than half the purchase money, and, when the cars had been transferred to an adjoining State and placed upon the track of the railroad company, the vender, with this evidence of its lien in its pocket only, is now insisting that no title ever passed to its vendee or that it has a prior equity against the claims of credit-ors. If we should hold so we would disre-gard the plain provisions of our statute pro-viding that all instruments giving a lien shall be recorded. Here the reservation of the lieu created a chattel mortgage, and to make it valid as against purchaser or creditor in good faith it must have been duly filed of record.

Utilization of Blast-Furnace Slag.

new industry has been started in Middles-

boro', England, the object of which is to utilize blast-furnace slag in a somewhat more definite and systematic manner than has hitherto been attempted. The works where it is carried on belong to a limited company, the managing director of which is Mr. J. A. Jones. One of the objects of the company is to make paving sets. These are produced by pouring blast-furance slag into metallic molds, and then allowing the castings to cool slowly in an annealing furance. With-out annealing slag cast in whatever form is certain to fly to pieces by the unequal contraction which takes place as it cools. With annealing it can be cast into almost any form, and when finished is as hard and touch as a basiling week incompany tough as a basaltic rock. Inasmuch as these sets are as serviceable as those which are hewn from whinstone, and much more shapely, the manufacture and sale of them are of themselves a good thing for Cleveland and for all purchasing districts. But there are further manufactures. It has been found that if slag which has been annealed be pulverized and mixed with cement in certain proportions, and pressed into molds and put aside for, say, three months, it sets into a peculiarly firm, hard and solid mass. The injured by the negligence of the conductor, and he sued the company under the statute especially as applied to the manufacture of which made them liable for an act of a superconcrete flagstones. Consequently the co pany referred to are now making these and laying them down for footpaths, railway station, platforms, &c. The standard size of flagstone is about 3 feet x 2 feet x 3 inches. They are exceedingly flat and smooth and unusually hard on the surface. When laid

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ALSO COVERING LOSS OF LIFE AND ACCIDENT TO PERSONS, ARISING FROM

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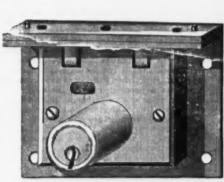
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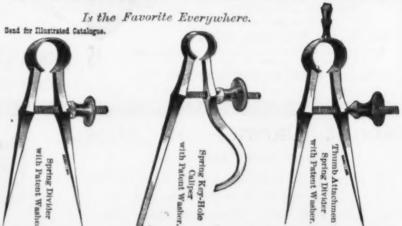
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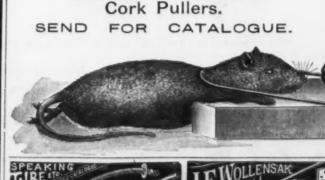
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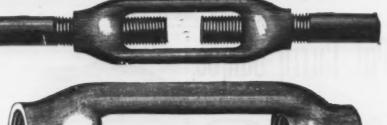
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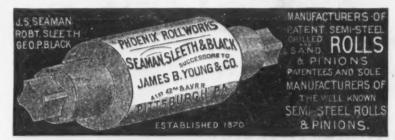
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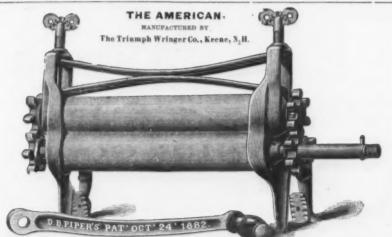
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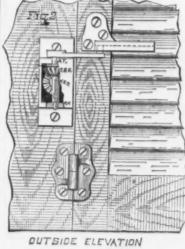
BIGELOW & DOWSE, Boston. HENRY BROOKS & CO., Boston. WALBRIDGE & CO., Buffalo, JOSEPH WOODWELL & CO., Pittsburgh. KRUSE & BAHLMANN, Cincinnati. A. F. SHAPLEIGH & CANTWELL HDW. CO.,

St. Louis.
WITTE HDW. CO., St. Louis.
EDWIN HUNT'S SONS, Chicago.
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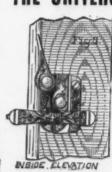
FARWELL, OZMUN & JACKSON, St. Paul. JANNEY, SEMPLE & CO., Minneapolis. MILLER BROS. & FLETCHER, Minneapolis. BLISH, MIZE & SILLIMAN, Atchison. PARK, CRANCER & (O, Leavenworth, ROGERS & BALDWIN HDW. CO., Springfield, Mo. FROTHINGHAM & WORKMAN, Montreal, Can. CAVERHILL, LEARMONT & CO., Montreal, Can. WM. THOMSON & CO., Toronto, Can WOOD & LEGGAT, Hamilton, Can.

Both with Adjustable Throat.

TOWER & LYON, Manufacturers, 95 Chambets St., New York.



THE UNIVERSAL SHUTTER



A strong, simple and durable fixture for opening and closing outside Blinds and Shutters from within the house without raising windows or removing window screens.

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BRIGHT IRON AND BRASS

WIRE GOODS.

Also Bright Wire Goods for Cotton and Woolen Mills. Wire straightened, cut, milled and bent into any shape, with or without thread. Write for Catalogue and Prices.

M. S. BROOKS, Chester, Conn. Established (848.)

GEO. M. SCOTT, Bellows Manufacturer, Johnson Street Cor. 22d St., CHICAGO, ILL.

December 30, 1886.	T	HEII
PHILADELPHIA.	Sad Irons. → to 10 b	8 x 7 3.5¢ 6 x 8 x 6 2.5¢ 6 x 8 x 5 2.5¢ 6 x
erms, 30 days. For 60 or 90 days, interest added at 8 per cent. per annum.	Washita No. 1 & b 256	8 x 3 156 5 x
nvils. Peter Wright's, # D	Washita Axe. # 1 150 Windostan Oil Stone No. 1. # 446 5 Hindostan Axe Stone # 5.6	8 x 2 1.5¢ 5 x 8 x 134 to 56 1.0¢ 5 x 8 x 36 1.0¢ 5 x 8 x 34 2.0¢ 5 x
Xes.	Hindostan Slips # B 8¢ Screws.—Parker list (new list). Flat Head iron die 80 4	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
Unit's Aentucky and Yanket, et dos.net	Flat Head Brass	7 x 4 2.0¢ 4 x 7 x 3 1.5¢ 4 x 7 x 2 to 56 1.0¢ 3 x
	Spoons	7 x 12 1.0¢ 3 x
nell's Aucers and Ria. 880. dis. 60@60.65 s ew Haven Copper Company dis. 61&10 s eaglamin Pierce Auger Bits. dis. 40 s ennings' Auger Bits. new list Jan. 1, 1884 dis. 25 s	Britannia, Boardman's dis 60 %	7 x 36 2.0¢ 3 x 6 x 5 2.0¢ 2 t 6 x 4 1.5¢ 2 t 6 x 3 1.5¢ 2 t 6 x 2 to 56 1.0¢ 56 All unenumerated
njamin Pierce Auger Bits	Springs	All unenumerated next larger dimensions specified lengths, 366
ok's Auger Bits and Augers	Other Standard Springs. dis 50&10@60 % Warner Door Springs. a Qoz. \$2.50. dis 40&10 @ 50 % Standard Spring Hinges	according to contract
arns: Pat. Hot. Augers, list \$48 $\%$ dozdis 20&10 $\%$ ances. ht and Common	Single No. 0. * doz. net	CRUCIBLE MACHI
In. vin Spor. Wfg. Co. Light Hand Balls die 25/225&10 C	Stocks and Dies. dis 30&10@40 1 Stove Polish.—Gem. F gross, \$4.50, dis 10 5 Dixon. 6.00, dis 10 5	434 to 5 inextra ols to 6 in extra to 11-16 inextra
th Hand Bells dis 75&10@75&10&5 \$ 198 Pattern Hand Bells 69 \$ 100 nell's Door Bells dis 20&10 \$ Western & Kentucky Cow.newlist.dis. 70@70&10 \$	Fire Fly. \$3.00 gross. net Tacks. Combination discounts Shoe Nalls—4-8, and over, 5\(\frac{1}{2}6\)	Octagons, 16¢ extra half the extras of the Cutting to multiple pound for anything
ing Machines right, without AugersList, \$5.50 \ gular, without AugersList, 6.75 \daggerdis, 50 %	Double Pointed Tacksdis 80@80&10 %	24 inches or less, acc
184	Ima Omalas Arew House	CRUCIBLE 134 to 4 in. x No 4 ga 1 and 135 in x No. 1 1 to 9 in. x No. 5 gau 34 to 3 in. x No. 11 ga 34 to 3 ln. x No. 11 ga 34 to 3 ln. x No. 17 ga 34 to 3 ln. x No. 17 ga 34 to 5 ln. x No. 17 ga
aniey. Wrought Shutterdis. 60&10 %	Coes' Genuinedis 60&3 \$	34 to 3 in. x No. 11 gg 34 to 3 in. x No. 17 gg 34 to 56 in. x No. 10 g
ICCES.—Barber's Improved dis 50 5 Ther's Old Style 50%10 5 CRUS. Pollshed dis 60%10@60%10%5 5 CRUS. Nickeled d's. 60%00%10 5 Offord dis 50%560%10 5 Lerican Ball dis 50%10%10 5 Inidon Improved dis 60%60%10 5 Inidon Corner Brace dis 40%40%10 5	Wire. Bright or Annealed, No. 0 to 18dis 721625675 5 Bright or Annealed, No. 19 to 26dis 685.810 5	36 to 56 in. x No. 10 g 36 to 56 in. x No. 17 g 36 to 56 in. x No. 21 g Cut to length. 24 it tra and under, acc
lerican Ball	Bright or Annealed, No. 0 to 18dis 7256856675 \$\frac{1}{2}\$ Bright or Annealed, No. 19 to 26dis 65810 \$\frac{1}{2}\$ Bright or Annealed, No. 19 to 26dis 65810 \$\frac{1}{2}\$ Coppered, 0 to 18dis 70 \$\frac{1}{2}\$ Coppered,	56 to 116 inchesbase
tn. st Fast Joint, Narrowdis 60&5 @ 60&10&5 % st Fast Joint, Broad dis 60&5 @ 60&10&5 %	Painted Barb Wire	CRUCIBLE SI
It Loose Joint. Narrow	Wringers. Per dos. Peerless No. 256. 27.00) d Peerless No. 336. 31.50 ≥	To 21 gauge (for be extra, 1.0¢; and 1¢ gauge to No. 26.
## Fast Joint, Narrow dis 60&5 @ 60&10&5 \$ ## Fast Joint, Broad dis 60&5 @ 60&10&5 \$ ## Loose Joint. Broad dis 60&6 @ 60&10&5 \$ ## Loose Joint. Broad dis 60&5 @ 60&10&5 \$ ## Acorn. Loose Pin 70&10 @ 75 \$ ## Acorn. Japanned 70&10 @ 75 \$ ## Mare's Loose Joint dis 65&5 \$ ## Cugnt Loose Pin dis 65&5 \$ ## Cugnt Table Hinses and Back Flaps dis 65&5 \$ ## Cugnt Loose Joint dis 65&5 \$ ## Cugnt Loose Joint dis 65&5 \$ ## Cugnt Rarrow Fast dis 65&5 \$ ## Hatte dis 65 \$ ## Hatte	Universal, No. 2 27.00 Universal, No. 14 30.00 Universal, No. 14 30.00 Universal, No. 14 31.50 Universal No. 14 31	Diameter. To 46 inchbas
rought Loose Joint	Universal No. 1 36,00 5 54,00 5 10 10 10 10 10 10 10 10 10 10 10 10 10	48 Inchextr 50 Inchextr 52 to 54 Inchextr
nd Butts. rker	Universal for Set Tuba, C. L. 45,00 8 Novetty, for Common Tuba, No. 2 & 236, 10 in 27,00 9 Novetty for Common Tuba, No. 2 & 24, 10 in 27,00 9	Hessemer an MACHINER % to 3 in. incbas
nd Butts. rker	Wingers Per dos Per dos Per dos Per dos Per dos Seperies No. 246 27.00 Per dos Universal No. 246 27.00 Universal No. 246 30.00 Universal No. 246 30.00 Universal No. 146 31.50 Universal No. 146 31.50 Universal No. 147 30.00 Universal No. 3	3% to 4 inches inc
&10@60 4		Machine cutting to
State	PITTSBURGH.	Machine cutting to according to contr on each size. She above extras for c
3-16 1 5-16 1 7-16 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Merchant Iron. TERMS.—Note or acceptance at 60 days, with current rate of exchange on New York, or a discount of 2 \$\nu\$ cent. for cash if remitted within 10 days from date of invoice.	M.
cket Firmerdis 75@75&5 1 tcher's	invoice. For fluctuations and discounts on card	114 in. and wider x 114 in. and wider x 114 in. and wider x 114 in. and wider x
1880	rates see weekly Pittsburgh Trade Report. The following are card rates.	\$\frac{4}{5}\text{in. to 1}\text{is in. x }\text{if in. to 1}\text{is in. x }\text{3}\text{in. to 1}\text{is in. x }\text{3}\text{in. to 1}\text{is in. x }\text{is in. x }\text{is in. to 5\text{is in. x }\text{is in. x }\text{in. x }in. x
lere Mills.—Box and Side (new list Jan. 1. 1880 dis 45&10) dis 45&10) derorlise. dis 20&106309 dery.—Walden Pocket. new list ne nnaylwania Knife Co uew list ne nders, Frary & Clark, J. Russell & Co., Lamson & address of the Co and Meriden Cutlery Co., Manu facturers' prices net.	# Tat Bar. 1 14 to 4 by % to 1 2.0 14 and 1% by % to % . 2.2 44 to 6 by % to 1 2.1 1 and 1% by % to % 2.2 1	94 in. to 154 in. x 35 94 in. to 154 in. x 154 95 in. to 95 in. x 34 95 in. to 96 in. x 35 15 in. to 155 in. x 1- 154 in. to 155 in. x 1- 154 in. to 3 in. x 1-16
(acturers' prices net. or Hangers Cronk Barn Door Hangers No. 4 2.00 : No. 5, \$14.00. No. 6, \$18.00 dis. 50&10@50&15; merican Parlor Door Hanger \$6.00; dis 20&10;		
nericau Parlor Door Hanger \$6.00 ; dis 20&10 ; wing Knives	3% to 43.0¢ 14 to 9-162.2¢ 143.0¢	inch aid wider x Extras same as Fl TIRE S
justable Handle dis 20@25	% to 1362.4¢ 362.8¢	Round Edge Tire,
9. holson dis 60&5@60&10 siston dis 60&10@60&10&10 tother own and Arrow du&10@60&10&10 tother ducklown du&10&10&10	% to 1% inch	Extras same as M
ting Machines. gle-34 in. roll each, \$2.15 dia 85	% to 1½ by 5-16 to ½ inch	1¼ inches and wide Extras same as M
tting Machines. sqle—34 in. roll each, \$2.15 dia 35 gle—54 in. roll each, 2.85 dia 35 gle—54 in. roll each, 2.85 doa 35 gle—54 in. roll each, 3.50 rown—4 in. roll each, 4.00 dia 35 grown—8 in. roll each, 4.00 dia 35 grown—8 in. roll each, 4.00 dia 35 grown—8 in. roll each, 5.50 rown—8 in. roll each, 5.50 grown—8 in. roll each each, 5.50 grown—8 in. roll each each each each each each each each	Wagon Bow From. 14 Inch, Nos. 13 & 143.2¢ 4 Inch, Nos. 11 & 123.3¢ 14 II & 123.0¢ 6 III & II & I23.3¢ 14 II & 133.0¢ 6 III & II & II & II & II & II & II &	114 to 4 in. x No. 4 g
		1 and 1½ in. x No. 5 gai 76 to 3 in. x No. 8 gai 76 to 3 in. x No. 17 gai 76 to 3 in. x No. 17 gai 76 to 36 in. x No. 17 gai 76 to 36 in. x No. 17 gai 76 to 56 in. x No. 17 gai 76 to 56 in. x No. 27 gai 77 gai 86 to 56 in. x No. 17 gai 86 to 56 in. x No. 18 gai 87 to 56 in. x No. 18 gai 87 to 56 in. x No. 18 gai 88 to 56 in. x No.
rnished	1 to 1% by 14 & 5-16. 2.2s 16 & 16 by 14 & 5 163.0s Light Bands.	% to % in. x No. 17 g
mmers. rkes & Plumb's. new list	1 14 to 6 by 14 to 3-16 2.5¢ 14 & 11-16 by 14 to 3-16.3.2¢ 15 to 6 by Nos. 11 & 12.2.3¢ 16 & 11-16 by Nos. 11 & 12.3.3¢ 1 to 114 by 15 to 3-16 2.6¢ 14 & 2-16 by 16 to 3-16 3.5¢	Bessemer and Op and over, 0.1¢ per p contract.
		% to 1% inchesbas % to 9-16 inextr % to 7-16 inextr
dies. ton Loop Handles Cross-Cut20¢ pair ne nton Loop Handles Cross-Cut20¢ pair ne nton Loop Handles Cross-Cut	114 to 4, Nos. 18, 14, 15.28 4, 14, Nos. 19 and 203.7 4 114 to 2, Nos. 16, 17, 18.2.9 4, No. 21	14 gauge thick and
chets	1 14 to 2, No. 20. 3.1¢ 11-16, Nos. 13, 14 & 15, 3.7¢ 14 to 2, No. 21. 3.2¢ 11-16, Nos. 16, 17 & 18.3.8¢ 11-16, Nos. 16, 17 & 18.3.8¢ 11-16, Nos. 19 and 20.	15, 16 and 17 gauge 18 and 19 gauge Rounds, ¾ diamete
and Straw Knives. ***********************************	0 15-16, 1 & 136, Nos. 13, 14 & 15	18 and 19 gauge Rounds, ¾ diamete Rounds, smaller siz Double bevel, 14 ga Double bevel, thinn
a Hay Knife # doz \$12.50@13.5	## A 13-10 09 Nos. 11, 12, 3.0 g 1/5 lin. by Nos. 11 & 12, 3.0 g ## A 13-10 09 Nos. 11, 12, 3.0 g 1/5 lin. by Nos. 10 and 20 3.7 g ## 14 to 2, Nos. 13, 14, 15, 2.8 g 1/4, Nos. 19 and 20 3.7 g ## 14 to 2, Nos. 10, 17, 18, 2.9 g ## 14 to 2, No. 19 3.0 g 1/4, Nos. 13, 14 & 15, 3.6 g ## 14 to 2, No. 21 3.2 g 1/1-16, Nos. 13, 14 & 15, 3.6 g ## 14 to 2, No. 21 3.2 g 1/1-16, Nos. 13, 14 & 15, 3.6 g ## 15 16, 1 & 1/4, Nos. 13, 3.2 g 1/4, Nos. 13, 14 & 15, 3.6 g ## 15 16, 1 & 1/4, Nos. 18 & 1/4, Nos. 18, 1/4 & 15, 1/4, Nos. 18, 1/4 & 1/4, Nos. 1/4, Nos. 1/4, 1/4, Nos. 1	Fork Steel, Open-H- Rake Steel, Open-H- Hoe Steel, Open-H- Auger Bit Steel, Op Plow Slabs, Open-H- Ovals and Half
rse Nails. Nos. 5 6 7 8 9 10 obe	15-16, 1 & 14, No. 22 3.36	Plow Slabs. Open-H Ovals and Half Shapes subject to a
em Hay Knife # dos \$12.50@13.5 mages. rap and T. dis 65&5 rise Nalls. Nos. 5	6 Nos. 19 and 20 3.4¢ 9-16, Nos. 19 and 20 4.3¢ 9-16, Nos. 19 and 20 4.3¢ 9-16, Nos. 21	Shapes subject to s No freight allowa pounds of Steel in o
ranac	18-16, Nos. 13, 14 & 158.4¢ 9-16, No. 23	Axle Billets Scythe Back Steel Grain Drill Bara
rker's Cabinet	13-16, No. 22. 3.86 4 inch, No. 10 2 20 1.66 4 inch, No. 21 4.76 4 inch, No. 22 4.86 4 inch, No. 22 4	Grain Drill Bars Grain Drill Points Cutter Shoe cut to Rolling Coulter Bla
# dos\$6.00 5.50 6.50 7.50 8.50 10.00 12.50 dis 60 80 61 62 63 dis 60 81 60 61 62 63 dis 60 81 60 60 60 60 60 60 60 60 60 60 60 60 60	Mi, Nos. 16, 17 and 18. 3.6# inch, No. 23	Rolling Coulter Blas Terms.—Four mon if remitted within 3
terns. large ist, net; small list, ne	lighter than the lightest indicated. 1-10¢ % B extra will be charged for cutting Hoops to specified lengths	Shell Steel, ¼ inch t pounds tensile str Shell Steel, 3-16 inc
nterus. large ist, net; small list, ne uckeys. large ist, net; small list, ne uckeys. large ist, net; small list, ne guards 40s extra. large ist, net; small list extra. liladelphis. large ist. large	### Barrel Hoops. 114 to 2 in., cut to length. 9 to 11 m, W set of 6 hoops. 3.00 8 m and less than 9 m, W set of 6 hoops. 3.10 Less than -m, W set of 6 hoops. 3.20	Shell Steel, 8 gaug
xcelsiordis 50 %	8 B and less than 9 B, W set of 6 hoops	Shell Steel, 10 gau 60,000 pounds ten Shell Steel Plates,
wn and Garden Pumps. olland Patentlist, \$5.00, dis 10	Cluding Tire	Shell Steel Plates,
attocks. og and Short Cutternew list, 60&5 ennsylvania Pattern	Sheet Iron. Common. Charcoal. Juniata.	Shell Steel Heads, Shell Steel Heads, 1 diameter
ennsvivania Fattern	Sheet From Charcoal, Juniata. Sheet From Common. Charcoal, Juniata. Nos. 10 to 14. 3.04 4.54 6.04 Nos. 18 to 21. 3.64 5.14 6.04 Nos. 22 to 24. 3.64 5.34 6.34 Nos. 25 to 24. 3.64 5.34 6.34 Nos. 25 to 24. 3.64 5.34 6.34 Nos. 25 and 25. 4.64 5.34 7.24 Nos. 26 and 25. 4.64 5.64 7.24 Nos. 26 and 26 5.45 7.24 Nos. 26 and 27 5.45 7.24 Nos. 27 5.45 7.24 Nos. 28 and 28 5.45 7.	diameter
rass Liquor Cocks new list Jan. 1, 1880.dis. 55&10- ork Lined Cocks	Nos. 25 and 28	tensile strength Flange Steel, 8 gau, 60,000 pounds ten Flange Seeel, 10 ga
1xon'sdis. 45	All sheets No. 18 and lighter, over 30 inches wide, not less than 2.10¢ extra. Wood's Patent Plantshed Sheet.	Flange Seeel, 10 ga 60,000 pounds ten Flange Steel Plates
	lat quality (A)	Flange Steel Plates
rers, 4 pple and Peach. leal Apple Parers	Nos. 14 to 20	Flange Steel Heads diameter Flange Steel Head inches diameter
rers. * ppie and reaca. leal Apple Parers	0 Nos. 21 to 24 160 No. 29 160 0 160 60 62 6 discount. 160 No. 29 160 160 160 160 160 160 160 160 160 160	
onarch Peach Parersper doz \$15.00 dis 10 mnos.—Sandusky Fool Codis 2022 gonts	Coal Screen Iron. 1% by % by 5-16	Best Boiler Steel, 3 pounds tensile str Best Boiler Steel, 8 to 70,000 pounds t
hio and Auburn	1% by % by 5-16. 2.5¢ 1 by % by 5-16. 3.0¢ Anale Iron. 24, 3, 34¢ and 4 inch 2.8¢ 14; by 1, for Pl. Hand. 3.3¢ 1 14, 18, 2 and 2½ " 2.8¢ 15; by 4 " 3.3¢ 14 inch 2.0¢ 19; by 4 " 3.4¢ T Rati.	Best Boller Steel, 10 to 70,000 pounds t Best Boller Steel Pl
mnes	### T Rail. 8 m to the yard2.4e 20 m to the yard2.3e	Best Bo'ler Steel I wide Best Boller Steel He
cks.—New list	8 m to the yard	inches diameter Best Boiler Steel He inches diameter
cks.—New list	3% by % and % Spikes for 20 and 28 B Rail	
tanley Ivory	1 1k to 2 by k to & Inch	Entirely new, l
Test dos	11/6 to 2 by 1/6 to 46 inch	one plate of ste
Lbs	Junieta Nail Rods, 6.04; Norway Nail Bods, 7.54. Guard Iron, 5x35(x34 and 5x35x35)	being lighter, a
teel and Iron.dis. 60&10 %; full cases dis	Dropper Bars	These sinks, wrought steel, w
Disston's Try Squares	See Pittsburgh Trade Report. Tool Steel. Classification Adopted April 13, 1886, Steel Association	heat, cold, or an
Custer's. guares. Steel and Iron.dis. 60&10 \$; full cases dis. 70&10@70x10&10 Try Squares. Stanley. Disston's Try Squares. Gilden Clipper, Damascus Blade, Roxed and Sharpened. Clipper No. 10, Bronsed Blade, Boxed and Sharpened. wdos 86.70 ne gws.—Disston's Hand, Fanel and Rip. dis 20&10 Disston's Circular. dis 45&10 Guares.	of United States. RUCND, SQUARE AND OCTAGON.	or galvanized, as —freedom from
a ws. Disaton's Hand, Panel and Rip. dis 20810 Disaton's Circular dis 45&10 Cross-Cut No. 2, Piain Tooth dis 45&10 Cross-Cut Patent Tooth dis 45&20 Cross-Cut Champion Tooth dis 45&20 Across-Cut Champion Tooth dis 45&20 Across-Cut Champion Tooth dis 50&10 Acrols and Spades. Liver-Ames & Sons, new list dis 20 rimths, C. 8 dis 50&10 owland dis 50&30&10	\$\frac{4}{5}\$ to 2base, 8.0\$ \$\text{0}\frac{4}{5}\$ to 7\$ 3.0\$ \$\frac{4}{5}\$ \$\frac{4}{5}\$ \$\text{0}\$ 3ext. 1.0\$ \$7\frac{4}{5}\$ to 8\$ 3.5\$ \$3\frac{4}{5}\$ 1.6. 5.0\$ \$\frac{4}{5}\$ \$\text{0}\$	ered—less than from cast iron.
levels and Spades. level Ames & Sons, new list	4 2 to 5 2.0¢ 7-16 to 76 1.0¢ 36 18.0¢ 5 4 to 6 2.5¢ 5-16 and 11-32 2.0¢ 4 5 18.0¢ 5 5 to 9-16 inches wide x z to % inches thickbass. 8.0¢	THE KIL
owlanddis 50@80&10;	s to B-10 inches wide x z to % inches, thick, ,, base, \$,0\$	THE RIE

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	Sad Irons. —4 to 10 b. \$ \$ \$ \$ \$ 2.85\$\tilde{2}.50\$\tilde{e}\$ Mrs. Potta' Patent. dis 35\$\tilde{a}40 \$ Stone. \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	8 x 7. 8 x 6. 8 x 5.
-		8 x 3 8 x 3 8 x 1 8 x 1 8 x 1 8 x 1
	Flat Head Brass	77777777777777777777777777777777777777
	Plated	7 x 5 6 x 5 6 x 3 6 x 3
	Britannia, Parker's. dis 690x10@d0x10&10 \$ Finned. dis 10 \$ Springs.—Torrey dis 50 \$ Gem No. 3 small Japanned. \$2.00 dis 50 \$ Gem No. 2 medium Japanned. 2.75 dis 50 \$ Coli No. 10 \$ gross net. \$5.50@6.00 Other Standard Springs. dis 50x10@60 \$ Warner Door Springs. \$0.00 \$2.50 dis 40x10 @50 \$ Standard Spring Hinger— Single No. 0. \$0x net. \$1.10x125	6 x 2 All next spec acco
	Warner Door Springs, № aoz. \$2.50. dis 40&10 @ 50 \$ Standard Spring Hinger— Single No. 0. № doz. net. \$1.10@1.25 Single No. 1. № doz. net. 1.25@1.50 Other Standard Spring Hinges. dis 25.210@40 \$ Other Standard Spring Hinges.	84 to 356 t
* * * * * *	Standard Spring Hinger— Single No. 0. \$\psi \text{doz}\$, net. \$1.10\text{doz}\$, 1.25\text{doz}\$, 1.25d	ols to Oc half Cutt pour 21 fr
* ***	Traps. Genuine Oneida—Newhouse dis 35%40 % Im. Oneida—Newhouse list. First qual.dis 60&10&10 % Vises. — Solid Box Trenton new list. dis 60@60&b % Vrenches. — Agricultural dis 80&10&60 c Coes Genuine dis 80&10&3 % Coes Genuine dis 60&5 Coes Mechanics dis 60&10&3 % Coes Mechanics dis 80&10 % Mire. dis 80&10 %	134 to 1 an 1 to 34 to 34 to 35 to
****	Coes' Hechanics, 'Mail. Bar	36 to
NA MA	Fight or Annealed, No. 0 to 18. dis 72½&5&75 ft	56 to 16 to 36 o
× 4444	Galvanized. Nos. 7 to 18. Market List, dis	Dian To 4 48 50 52
****	Iniversal, for Set Tubs. E 116	84 to 314 to
% 34 30 (¢	PITTSBURGH.	Mac Mac Mac Mac ac or al
g g	TERMS.—Note or acceptance at 60 days, with current rate of exchange on New York, or a discount of 2 w cent, for cash if remitted within 10 days from date of invoice.	154 154 154 154 154
THE STA	For fluctuations and discounts on card rates see weekly Pittsburgh Trade Report. The following are card rates. Flat Bar. 114 to 4 by 14 to 1 2.04 114 and 114 by 14 to 14. 2.14	26
4. %	114 to 4 by \$6 to 1 2.0¢ 14 and 136 by \$6 to \$6. 2.1¢ 43 to 6 by \$6 to 1 2.1¢ 1 and 136 by \$6 to \$6. 2.2¢ 134 to 6 by 136 to 15. 2.4¢ 64. \$4 and \$6 by \$6 to \$6. 2.2¢ 134 to 6 by 136 to 15. 2.4¢ 64. \$4 and \$6 by \$6 to \$6. 2.4¢ Rounds and Squares. 1 to 124 2.0¢ 34 to 5 3.5¢ 84 2.6¢ 2 to 286 2.2¢ 84 to 56 2.1¢ 5.14 9 2 6 6	
* *	1 to 1% 2.0¢ \$\frac{4}{3}\times \frac{6}{3}\times \frac{3}{3}\times \frac{1}{3}\times \frac{1}{3}\ti	Thi
×	\$4 to 1\(\frac{1}{2}\) \tag{Oral Fron.} \$\\\ \frac{2.6 \tag{\frac{1}{2}}}{\tag{6}\} \tag{0.26 \tag{\frac{1}{2}}} 0.28 \tag{0.27 \ta	E
* * *	Wagon Bow Iron. 14 inch, Nos. 13 & 143.2¢ 4 inch, Nos. 11 & 123.3¢ 14	134 1 at
et 00	3\% to 6 by \% & 5-16. 2.2e \ \% to 7\% by \% & 5-16. 2.5e \ \ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \	94 t
75 et	114 to 6 by 16 to 3-162.6	Se to
**	\$\frac{1}{6} \times 12-16 \text{ by \$6} \times 10-3-16.2.\text{ by \$6} \times 15-3-16.2.\text{ be } \frac{1}{6} \text{ inch by \$76.8.1.} \times 12-3.9e} \] \$\frac{1}{6} \times 14, \text{ los. } los.	14 15, 18 Ros
50 % 00 50	15-16, 1 & 1½, Nos. 13, 11-16, No. 21. 4 06 14 & 15	Rot Dot For Rai Ho
* * *	10-16, 1 & 14, No. 21. 3.3 & 42. 15-16, 1 & 14, No. 22. 3.4 & 3.15-16, 1 & 14, No. 22. 3.4 & 42. No. 23. 1, 14 and 15. 3.2 & 43. No. 13, 14 and 15. 3.4 & 4.6 & 4.	Au Plo Sha N
-	96, No. 21. 3.66 9-16, No. 21. 4.46 No. 22 3. 4.66 No. 23. 4.46 15.36 9-16, No. 22 4.66 15.16, Nos. 18, 14 & 15.354 9-16, No. 23 4.15.16, Nos. 16, 17 & 18.354 15.16, Nos. 19 and 20. 3.64 inch, Nos. 13, 14, 15, 4.57 15.16, Nos. 19 and 20. 3.64	Ax Sey Gra
* * *	13-16, No. 22	Gra Cut Rol T
et	lighter than the lightest indicated. 1-10¢ % a extra will be charged for cutting Hoops to specified lengths	She She
	1M to 2 in, cut to length. 9 to 11 h, # set of 6 hoops. 8 h and less than 9 h, # set of 6 hoops. Less than - b, # set of 6 hoops. Extras for cutting to length all preceding Iron, including Tire.	-
2	Tank Iron. No. 9 & heavier, 2.8\$; Plow Slabs, 3.0\$ Plow Wings, 3.3\$ Sheet Iron.	She d
8 8 8 8	Nos. 10 to 14. 3.0¢ Nos. 15 to 17. 3.3¢ Nos. 16 to 17. 3.3¢ Nos. 18 to 21. 3.6¢ Nos. 22 to 24. 3.8¢ Nos. 23 and 25. 4.0¢ Nos. 25 and 27. 4.0¢ Nos. 25 and 27. 4.2¢ Nos. 27. 4.2¢	Fla
* ***	All sheets No. 18 and lighter, over 30 inches wide, not less than 2.10¢ extra. Wood's Patent Planished Sheet.	Fla 6 Fla
98	Nos. 14 to 20	
50 00 00 %		
2	1% by % by 5-16 2.5e 1 by % by 5-16 3.0e 2%, 3, 3% and 4 inch . 2.5e 16 by 1, for Pl. Hand. 3.3e 116, 18, 2 and 24 " . 2.5e 15 by 4 " 3.5e 116, 10ch	Bes Bes
5 00 00 5 5	8 h to the yard. 2.44 '20 h to the yard. 2.56 '12 " " 2.56 '2 " " 2.56 '16 " " 2.56 '30 " 2.56 '30 "	Bes
50	# Fat Fats. — Funched and Countersum. 1½ to 2 by ½ to % inch	one
50	Junieta Nail Rods, 6.0¢; Norway Nail Rods, 7.5¢. Guard Iron, %xx%x% and %xx%x%. Guard Iron %xx%x% land %xx%x%. Guard Iron %xx%x% land %xx%x% Drag Bars. 2.8¢ Cyl & Landside Iron. 2.7¢ Dropper Bars 8.5¢ Plow Beam Iron. 2.5¢ Nails.	bei
et	Bee Pittsburgh Trade Report. Teel Steel. Classification Adopted April 13, 1880, Steel Association of United States.	bes
CAMME	RUCND, SQUARE AND OCTAGON. % to 2base, 8.0¢ 6% to 7 3.0¢ ½ & 9-32, 3.0¢ 2½ to 3ext. 1.0¢ 7½ to 8 3.5¢ 3-16 5.0¢	or —f

	List of Extras.	
8 x 7 3.5¢	6 x 16 1.0¢	56 x 7-16 1.0€
8 x 6 2.5¢	6 x 14 1.0¢	56 x 36 1.0¢
8 x 5 2.5¢	6 x 18 2.0¢	56 x 5-16 1.5¢
8 x 4 2.0¢	5 x 4 1.5¢	56 x 14 1.56
8 x 3 1.5¢	5 x 3, 1.0¢	56 x 3-16 2.0¢
8 x 2 1.5¢	5 x 2 to 56 1.0¢	56 x 16 2.0¢
8 x 134 to 56 1.0¢	5 x 16 1.0¢	16 x 7-16 1.0€
8 x 16 1.0¢	5 x 14 1.0¢	16 x 36 1.0¢
8 x 34 2.0¢	5 x 18 2.0¢	16 x 5-16 1.5¢
8 x 19 3.0¢	4 x 3 1.0¢	16 x 14 1.5¢
7 x 6 2.5¢	4 x 2 to 56. 1.00	16 x 3.16 2.0e
7 x 5 2.0¢	4 x 16 1.0¢	1 x 1 1 1 3.0€
7 x 4 2.0¢	4 x 14 1.00	36 x 5-16 1.5¢
7 x 3 1.5¢	4 x 18 2.0¢	36 x 14 2.0¢
7 x 2 to 56 1.0¢	3 x 3 to 56 1.0¢	36 x 3-16 3.0¢
7 x 16 1.0c	3 x 16 1.0¢	36 x 36 4.0¢
7 x 14 1.0¢	3 x 14 1.0¢	5-16 x 14 2.0¢
7 x 16 2.0¢	3 x 18 2.0¢	5-16 x 3-16 4.0¢
6 x 5 2.0¢	2 to % x 16. 1.0¢	5-16 x 16 8.0¢
6 x 4 1.5¢	2 to % x 14. 1.5¢	
6 x 3 1.5¢	2 to 38 x 18. 2.0¢	
6 x 2 to \$6 1.0¢	56 X 16 1.0¢	3-16 x 1/8 20.0¢
All unenumera	ted sizes will be c	harged at price of
next larger dime	nsion in list. Cutt	ing to multiples or
specified lengths	. lee B b for ove	er 24-inch; under,
according to con	tract.	i minori
	Crucible Steel	m.
	ACHINERY, ROUNDS	

	All unenumerated sizes will be charged at price of next larger dimension in list. Cutting to multiples or specified lengths, 1/4 & D for over 24-inch; under, according to contract.
1	Crucible Steels.
	CRUCIBLE MACHERY, ROUNDS AND SQUARES, \$4 to 3 inchesbase, 4.0¢ 1 \(\frac{1}{2} \) for to 1 \(\text{inches}\) base, 4.0¢ 1 \(\frac{1}{2} \) for 7.1¢ in\) extra, 0.5¢ 4 \(\frac{1}{2} \) to 5 in\) extra, 0.5¢ 4 \(\frac{1}{2} \) to 5 in\) extra, 0.5¢ 4 \(\frac{1}{2} \) to 5 in\) extra, 1.0¢ 4 \(\frac{1}{2} \) to 5 in\) extra, 1.0¢ 4 \(\frac{1}{2} \) and 9.32\) extra, 1.5¢ 5 \(\frac{1}{2} \) to 11.16 in\) extra, 0.2¢ 6 \(\frac{1}{2} \) to 11.16 in\) extra, 0.2¢ 6 \(\frac{1}{2} \) cotagons, 1 \(\frac{1}{2} \) extra, 0.2¢ 6 \(\frac{1}{2} \) cotagons, 1 \(\frac{1}{2} \) extra, 0.2¢ 1.11 for multiples or specified lengths, 1 \(\frac{1}{2} \) for engine 24 inches long. For lengths 24 inches or less, according to to special contract. CRUCIBLE SPEINS STEEL, FLAT. 12\(\frac{1}{2} \) to 4 in. x No. 4 gauge to 4 gauge inc\) extra, 0.2¢ 1 to 9 in. x No. 5 gauge to 7 gauge inc\) extra, 0.2¢ 1 to 9 in. x No. 5 gauge to 10 gauge inc\) extra, 0.2¢ 4 to 3 in. x No. 8 gauge to 10 gauge inc\) extra, 0.2¢ 4 to 3 in. x No. 17 gauge to 20 gauge inc\) extra, 3.5¢ 4 to 3 in. x No. 17 gauge to 20 gauge inc\) extra, 3.5¢ 4 to 3 in. x No. 10 gauge to 10 gauge inc\) extra, 3.5¢ 4 to 3 in. x No. 10 gauge to 10 gauge inc\) extra, 3.5¢ 4 to 3 in. x No. 10 gauge to 10 gauge inc\) extra, 3.5¢ 4 to 3 in. x No. 10 gauge to 10 gauge inc\) extra, 3.5¢ 4 to 3 in. x No. 10 gauge to 10 gauge inc\) extra, 3.5¢ 4 to 3 in. x No. 10 gauge to 10 gauge inc\) extra, 2.5¢ 4 to 3 in. x No. 10 gauge to 10 gauge inc\) extra, 2.5¢ 4 to 3 in. x No. 10 gauge to 10 gauge inc\) extra, 2.5¢ 4 to 3 in. x No. 10 gauge to 10 gauge inc\) extra, 2.5¢ 4 to 3 in. x No. 10 gauge to 10 gauge inc\) extra, 2.5¢ 4 to 3 in. x No. 10 gauge to 10 gauge inc\) extra, 2.5¢ 4 to 3 in. x No. 10 gauge to 10 gauge inc\) extra, 2.5¢ 4 to 3 in. x No. 10 gauge to 10 gauge inc\) extra, 2.5¢ 4 to 3 in. x No. 10 gauge to 10 gauge inc\) extra, 2.5¢
	36 to 36 in. x No. 17 gauge to 20 gauge incextra, 5.08 36 to 36 in. x No. 21 gauge to 24 gauge incextra, 6.06
	Cut to length, 24 inches and over. We per pound ex-
	Ta and under according to special contract, ROIND AND SQUARE CRUCEBLE SPRING STEEL 3\ to 14\ inches, base, 1.\ e\ 5-16\ in \ extra, 1.0\ e \ to 9-16\ in \ extra, 2.0\ e \ 4\ in \ extra, 1.5\ e \ 3\ 6 \ 0 7-16\ in \ extra, 0.5\ e \
	CRUCIBLE SHEET STEEL, ALL GRADES.

To 21 gauge (for best quality), base, 9.0¢; 22 gauge, extra, 1.0¢; and 1¢ advance of extra for every No, of gauge to No. 26.
CRUCIBLE CIRCULARS.
Diameter. To 46 inchbase, 11¢ 85 to 60 inchextra, 56 48 inchextra, 16 65 to 64 inchextra, 70

Diameter.	Hameter.
To 46 inch base, 11¢	56 to 60 inch. extra. 5¢
48 Inchextra, 1¢	62 to 64 inch. extra, 7¢
50 inch extra. 20	66 to 70 inch . extra. 9¢
52 to 54 Inch. extra. 3¢	72 inchextra. 11¢
Bessemer and Op	en-Hearth Steels.
MACHINERY ROUN	DS AND SQUARES.
% to 3 in. incbase, 2.8¢	% to 11-16 inch inc0.2¢ % to 7-16 inch inc0.3¢
Old to 4 Inches the Cation	78 to 1-to men me

Į	316 to 4 Inches Inc0.36 5 16 and 11-32 in. inc0.56
1	156 to 5 inches inc0.56 14 and 9-32 inch inc. 0.74
1	519 to 6 tuches (uc1.0¢)
J	Machine cutting to specified lengths above 24 in . 0.26
1	Machine cutting to specified lengths, 12 to 24 fn. 0.4
١	Machine cutting to specified lengths, less than 12 in.
1	according to contract, but not less than 0.6¢ extra
ı	on each size. Shearing or sawing, one-half of the
ı	above extras for cutting.
ı	
1	MACHINERY FLATS

	134 in. and wider x 34 to 1 in. thick
1	4 inch and wider x % to 1 inch thick base, 2.6 Extras same as Flat Machinery extras.
1	TIRE STEEL SOUADE EDGES

	TIRE STEEL, SQUARE EDGES.
1	Throughout the list 0.2¢ more than for same sizes of Round Edge Tire, TOE-GALE STREE.
١.	
^	14 inches and wider x 1/4 to 1 inch thickbase 2.74 Extras same as Machinery Extras
	SLEIGH-SHOE STEEL.
1	14 inches and wider x 36 to 1 inch thickbase, 2.8¢ Extras same as Machinery Extras.
	PRING STEEL FLAT.
1	14 to 4 in. x No. 4 gauge to 14 in. inc base, 2.9¢ and 114 in. x No. 1 gauge to 4 gauge inc extra, 0.2¢ to 3 in. x No. 5 gauge to 7 gauge inc extra, 0.5¢
î	4 to 3 in. x No. 8 gauge to 10 gauge incextra, 1.0¢
á	to 3 in. x No. 11 gauge to 16 gauge incextra, 2.0¢
á	to 3 in. x No. 17 gauge to 20 gauge ioc extra, 3.5¢
1	\$ to \$6 in. x No. 10 gauge to 16 gauge inc .extra, 4.0¢
4	6 to % in. x No. 17 gauge to 20 gauge fat extra, 5.0c
- 6	to be my we had the control to the

1	Double bevel, thinner than 14 gauge extra, 1¢
ı	Fork Steel, Open-Hearth or Bessemer 32
1	Rake Steel, Open-Hearth or Bessemer 46
1	Hoe Steel, Open-Hearth or Bessemer
ı	Auger Bit Steel, Open-Hearth or Bessemer36
j	Plow Slabs. Open-Hearth or Bessemer
١	Ovals and Half Ovais, Half Rounds and Special
į	Shapes subject to special agreement.
ı	No freight allowance shall be made on less than 500
ı	pounds of Steel in one shipment.
ı	b
ļ	MISCELLANEOUS.
ł	Arle Billets 2 el Torosber Steel 2144
1	Axle Billets
1	Grain Drill Bars 2366 Rolled Ham'r Billets .2366
1	Grada Aria Dara296 Moned Ham'r Billets .2964

Grain Drill Bars 2566 Rolled Ham'r Billets .256	ü
Grain Drill Points356¢	
Cutter Shoe cut to lengths and tapered	14
Rolling Coulter Blanks, cut and punched	4
if remitted within 30 days.	
Plate Steel.	
Shell Steel, 14 inch thick and heavi r. 50,000 to 60,000 pounds tensile strength	Sø
Shell Steel, 3-16 inch thick, 50,000 to 60,000 pounds tensile strength	
Shell Steel, 8 gauge and 9 gauge thick, 50,000 to	ľ

inches diameterextra on each thickness, 14	Shell Steel, ¼ Inch thick and heav! 7,50,000 to 60,000 pounds tensile strength
	Best Boiler Steel Heads. 105 inches diameter to 108

Heads, when not in complete Boller sets, to be %6 per pound extra on each above grade, thickness and size. No Steel to be sold as Marine Boller Steel except Best Boller grade. Tank Steel, not stamped, ½6 per pound less than Shell Steel, subject to same classification.

Misscellaneous Cast Steel.

cation.

Auger and Auger Bit...36
Axle Steel for carriages
and wagons. — Steel solder subject to Machin'y classification.546
Frog Side Bars...566
Fick and Mattock, beveled rolled). — 346
Skate Steel 4466

State Steel 4466

Miscellaneous Cast Steel. — 546
Solder — 546
Forg Side Bars...566
Frog Side Bars

ike and Cant Hook?¢ oal & Granite Wedge?¢	Slide Bars, plain
FILE CAS	ST STEEL.
quare.Round. Half Rnd and Flat Bastard, 8 In. and over	Mill Saw, 8-in. and over.56 Taper, 336-in. and over.66 Horse and Shoe Rasp56
SPRING CA	ST STEEL.
olid Safe Cast Steel	is5346

Hoe, Crucible 56	Cruc. Plow St'l in Slabs. 4¢ Castings.
Fork & Rake. Crucible46 Horse Rake Steel. cut to lengths. Crucible56	Steel in Bars416
AGRICULTURAL IMPL	EMENT CAST STEEL.
TWILL WING LIVE LIT CHAL GIVE	OF THIS ASSESSMENT OF THE PROPERTY OF

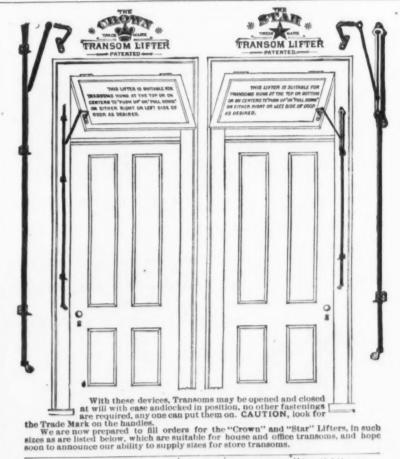
Per II
154
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erwise
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Window Glass. Single Strength.

United	Sizes.	AA.	A.	В.	c.
25	6 x & to 10 x 15	\$8,75	\$8,00	\$7.50	87.0
	11 x 14 to 15 x 24	10.00	9.25	8.75	8.6
	16 x 24 to 20 x 28	12,50	11.50	10.25	9,0
	15 x 34 to 24 x 30	13.25	12.00		9.7
60	26 x 28 to 24 x 36	14.50	13.00		10.2
70	26 x 36 to 26 x 44	15 00	13.50		11.6
	26 x 46 to 30 x 50	16.75	15.25	13,75	11.7
	30 x 52 to 30 x 54	17.50	16.00	14.25	
90	30 x 56 to 34 x 56	19 25	17.50	15.75	* *
	34 x 58 to 34 x 60,	20.75	18.75	16.75	
100	36 x 60 to 40 x 60	22,25	20.75	18,50	
	Double Strength.				
25	6 x 8 to 10 x 15	13.00		11.00	10.0
36	11 x 14 to 15 x 24	15,50	14,00	13.00	12.0
48	16 x 24 to 20 x 28	19.59	17.75	16.25	
	15 x 34 to 24 x 30	20.75	19.00	17.00	**
	26 x 28 to 24 x 36	22,00	20.25	18,95	
70	26 x 36 to 26 x 44	23.00	21.25	19,00	
	26 x 46 to 30 x 50	25.00		20.50	* *
	30 x 52 to 30 x 54	26,50	24.50		**
	30 x 56 to 34 x 56	28.50		23,50	
	35 x 58 to 34 x 60	31.50	29,00		
100	S6 x 60 to 40 x 60.	34.50	31.75	28,50	

Sizes above — \$10 \(\Primes\) box extra for every 5 inches. An additional 10 per cent, will be charged for all glass more than 40 inches wide. All sizes above \$2 inches in length, and not making more than \$1 united inches. Will be charged in the \$4 united inches.

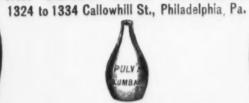
%0 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	Hubbard, & Co.'s Goods.
0	Axes, Single Bit. Lippincott per doz., \$7.5
120	Aves, Single Bit, James & Co per doz. 0.5
. 0	Axes. Double Bit, Lippincott per doz., \$12.5
160	A ves Double Rit. James & Co per doz., 10.0
	Drain Tools, list
of	Hoes, Planters' and Scovill Pattern dis 50
m.	Hoes, Handled, Square Eye, German
es,	Handles, Cross Cutper doz., \$2.2
in it	Handles, Shovel, Bent, Bored, Riveted., per doz., 2.0
	Saws, Circulardis 50
	Saws, Long
600	Sawa Cross.Cut. H. R. & Co., Champion, foot net., 10, 2
	Saws, Cross-Cut, Lippincott, Champion, foot net. \$0.2
	Shovels, list
	Spades, listdis 20&736&5
360	Scoops, listdis 20&716&5



		Price List "Crown" Lifters.					L. Linna w	10.	Star" Lifter	
No L	Length	Size of Rod.		Price Each.	APRIL 8th	No.	Length	Size of Rod.		Price Each
43 3 44 4 45 4 4354 3 4435 4	3 feet 4 5 3 4 5	% X%	Bronzed Iron,	0.65 0.75 1.75 2.00 2.25	1886.	83 84 85 8354 8454 855	5 "		Nickel Plated.	2.25

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B. SEIDEL, R. MANUFACTURER OF

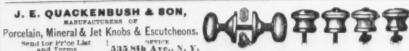
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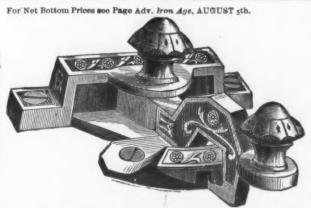
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This creeper is made of the best English Crucible Cast Steel Wire, hardened This creeper is made of the best English Crucible Cast Steel Wire, hardened and tempered. It can be put on the heel in an lastant, and can be taken off as quickly. To put it on, let one side of the creeper on the heel, then spring on the heel, then spring open till the the other side will go on the heel. To take it off, take hold of the back and pull down till it comes off.

> WM. McNIECE, Patentee and Manufacturer,

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L'Hommedieu's Ship Auger dus 18 5 Jenning's Bitts. dis 25 8 Cook's Bitts. dis 508.10 8 Griswold's Bitts dis 608.108.5 Lewis's Patent Bitts dis 40 8 Jennings' Pattern dis 508.108.5
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Snoe Knives, wood's.
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N. W.	Quaker Citydie 50&5 %
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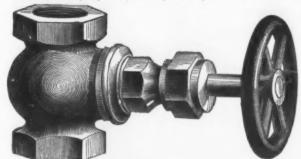
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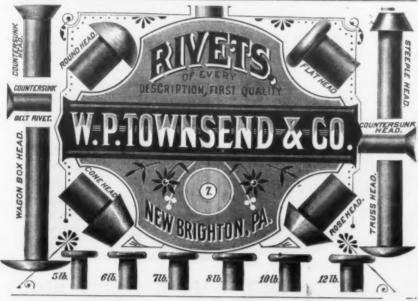
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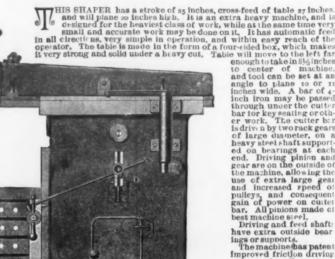
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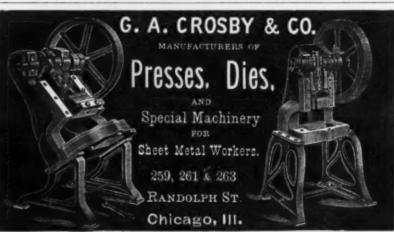
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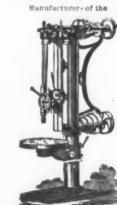
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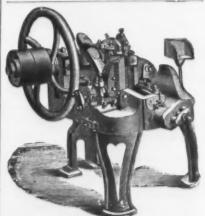
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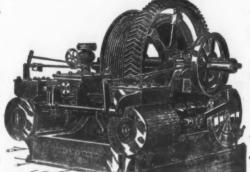


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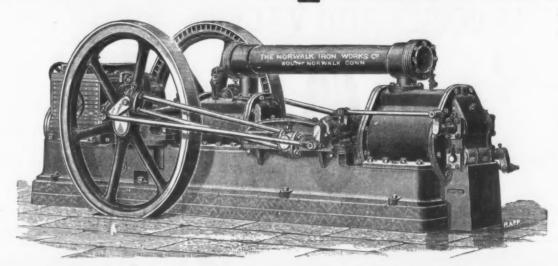
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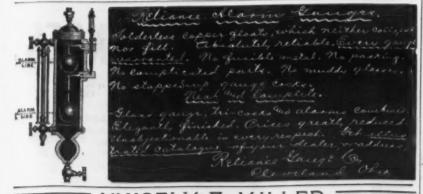
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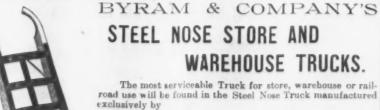
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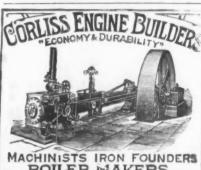
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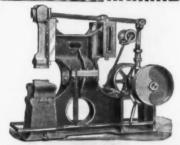
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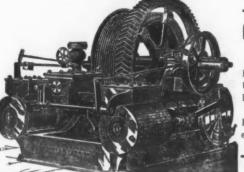


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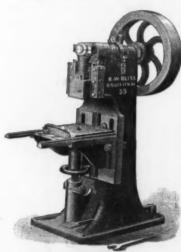
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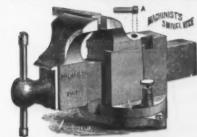
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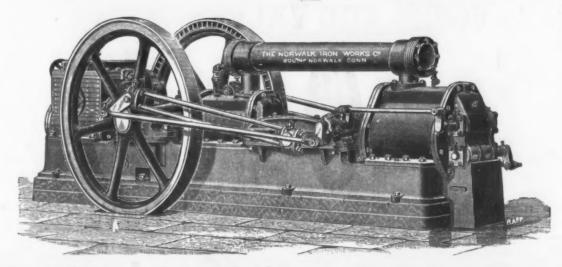


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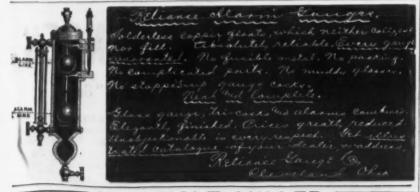
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